PRESIDIO

TRAFFIC ANALYSIS

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PRESIDIO TRAFFIC ANALYSIS
Presidio of San Francisco, California

Prepared Under the Direction of

U.S. Department of the Interior
National Park Service
Denver Service Center
Denver, Colorado

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Executive Summary

Introduction

The Presidio of San Francisco is in the process of transition from operation and management by the U.S. Army, to operation and management by the National Park Service as a part of the Golden Gate National Recreation Area. As a result, the National Park Service is developing a General Management Plan (GMP) and an Environmental Impact Statement (EIS) to address its long-range management.

The National Park Service is conducting a traffic study for the Presidio to obtain data needed for the GMP and EIS. The study is being coordinated with the Park Service's Presidio Planning Team, the City of San Francisco, and Army staff at the Presidio. In addition, NPS coordinated with the Army, City of San Francisco, and California Department of Transportation to obtain permission to collect traffic counts under their respective jurisdictions. The first phase of the traffic study is to document existing traffic conditions at several locations in and around the Presidio, and compare the results with those of a "Road System Study" conducted by the U.S. Army Corps of Engineers in 1988. This project serves the multiple purposes of generally verifying information in that earlier report, updating traffic counts to address conditions in the current study period, and collecting additional data for weekend traffic conditions, selected intersections outside the Presidio boundaries, and some parking areas within the Presidio.

Following completion of the first project, the traffic study will continue with analysis of the Presidio's transportation system. This work is expected to include trip generation and growth estimates based on land use planning, system modelling, impacts analysis, and recommended improvements, for use as needed in the GMP and EIS. Other transportation modes will also be analyzed in this process, including bicyclists, pedestrians, and public transit.

Scope of this Project

The work documented in this report includes machine traffic counts at Presidio entrance/exit points, capacity studies at intersections near the entrances/exits, machine traffic counts at various other locations within the base, and parking lot use analyses at several locations within the base.

Existing Conditions

Roadways within the Presidio were designed primarily for the operations of the Army base. However, since it is and has been operated as an open post, external traffic from San Francisco has free access to its roadways. Some of the Presidio's through routes carry significant numbers of external trips generated by the surrounding city. Many Presidio roadways however, carry little or no traffic that is not directly related to activities on the

base.These are generally local streets, streets that are harder to find, or streets that don't connect well with external routes.

Unlike the majority of its surroundings, the Presidio has ample parking space to accommodate facilities and activities within its borders. In fact, the eastern portion of Crissy Field is regularly used as an overflow parking area for activities outside the Presidio. Much of the Presidio's parking space is poorly organized, and therefore under-utilized. Some of the Presidio's parking space appears to be unneeded.

U.S. Highways 1 and 101 carry a great deal of external traffic through the Presidio. They are separated from the majority of Presidio roadways however, so this study has not specifically addressed their traffic characteristics. Because the major routes do affect some of the traffic patterns on the Presidio, they are discussed throughout this report when they apply. Most notably, Lincoln Boulevard carries a lot of traffic between San Francisco south of the Presidio, and Highway 101 at the Golden Gate Viewing Area. The gateways at Mason Street, Gorgas Avenue, Lombard Street, and Presidio Boulevard are also affected to some extent by Highway 101 traffic.

Comparisons, 1988 - 1991

Presidio traffic and roadway characteristics identified in the Army's 1988 study generally still appear to be valid. The base's roadway system is relatively unchanged since the 1988 study, and still provides sufficient capacity for the traffic that has been observed. Intersections within the base and at its entrances/exits also have adequate capacity for known traffic demand. Roadway safety and operational characteristics fall short of generally accepted standards in some cases, and roadway designs vary considerably throughout the base.

Gateway counts conducted by the Army in 1988 and those conducted for this study in 1991 and 1992 indicate that the distribution of trips entering and leaving the Presidio has remained relatively unchanged throughout this period. The Presidio entrance at 15th Avenue has had the greatest change, presumably due to decreased activity at the Public Health Service Hospital near this entrance.

Employment on the Presidio has decreased slightly during the period 1988-1991, and the two studies indicate that travel into and out of the Presidio probably has also decreased slightly. The decrease in gateway counts however, does not appear to be as large as the decrease in on-base employment might indicate. Accordingly, external traffic through the Presidio probably has increased slightly during this same period. This appears to be the case since traffic on some of the through routes has grown slightly since 1988, while the number of entrance/exit trips declined at gateways that are not as well suited to through traffic. In addition, the base's military police indicates that there have been more accidents on the post that could be attributable to drivers unfamiliarity with the base.

Although they were developed with differing approaches to data collection, the 1991 study generally confirms the traffic analysis presented in Chapters 1-4 of the 1988 study. Chapters 5-6 of the 1988 study addressed desirable improvements and future transportation needs which are likely to change with the Presidio's transfer to the National Park Service. As a

result, these portions of the Army's study are not addressed in this report. They will receive more attention in following phases of traffic analysis to be performed along with the Park Service's General Management Plan and Environmental Impact Statement.

Roadway System

Description of the Roadway Network

Situated in the northwest corner of San Francisco, the Presidio's roadway system serves the base's internal needs as well as some through-traffic generated by the surrounding city. Its roadways generally have two traffic lanes, although some four lane sections exist near the Main Post and on Crissy Field. Roadway alignments are closely tied to existing terrain, resulting in a lot of horizontal curvature and some steep grades. Shoulder widths range from nonexistent to very generous.

The Presidio has several main roadways that carry the bulk of its internal traffic, and provide connections to San Francisco through the ten Presidio gateways that are currently in use. Lincoln Boulevard runs north-south along the west edge of the base, and generally east-west along much of its north side. It connects to San Francisco at the southwest corner of the base, and has access to/from U.S. Highways 1 and 101 at the Golden Gate Viewing Area near the Golden Gate Bridge. At its eastern end, Lincoln Boulevard connects with Lombard Street and Presidio Boulevard near the Letterman complex. Lombard then extends into San Francisco to the east, and Presidio extends to the south along the base's easterly edge.

Washington Boulevard runs generally east-west through the central portion of the Presidio. It connects Lincoln Boulevard along the west coast to Battery Caufield Road and Arguello Boulevard, both of which run north-south from the Presidio interior toward San Francisco. Arguello runs from the Main Post, southerly past Washington Boulevard, into San Francisco. Battery Caufield Road runs to the south, connecting to San Francisco via 15th Street and Wedemeyer Street.

Mason and Old Mason Streets provide major east-west access through the Crissy Field area along the Presidio's north coast. Mason connects to Marina Drive and Doyle Drive at the Presidio's northeast gateway. At their western terminus, these routes indirectly connect to Lincoln Boulevard by way of three minor roadways (Crissy Field Avenue, McDowell Avenue, and Cowles Street).

Gorgas Avenue provides east-west access on the north side of the Letterman complex, connecting with U.S. Highway 101 and Lyon Street at another eastern gateway. Halleck Street completes the major roadway system, connecting Mason, Old Mason, Gorgas, and Lincoln in the area north of the Main Post.

Other roadways provide local access within the Presidio, or serve as "cutoffs" between the main routes. Although of less importance to the base's overall traffic flow characteristics, these roadways provide essential access to those areas within Presidio that are not directly served by the major routes, and in some cases relieve congestion on the main roadways by serving as alternate routes.

Most of San Francisco's through-traffic crossing the Presidio is carried by U.S. Highways 1 and 101. These routes cross the Golden Gate bridge at the northwest corner of the Presidio, pass through the base, and then continue to the south and east through San Francisco. Although both routes connect with most intersecting streets in the city, their only direct connection to Presidio roadways within the base is at the Golden Gate Viewing Area near the Golden Gate Bridge. Access to/from Highway 101 is available immediately outside the Presidio near the Mason, Gorgas, and Lombard entrances.

Average Daily Traffic Volumes

Figure 1 and Table 1 show weekday and weekend average daily traffic (ADT) volumes for each of the Presidio gateways and several interior locations. This information provides a general indication of the number of vehicles travelling on each of the Presidio's major roadways on the "average" weekday and the "average" weekend of its expected peak visitation month.

The National Park Service operates a permanent traffic counter at the entrance to Fort Point, (counter location 3-3 on Figure 1) within the boundaries of the Presidio. Data from this machine indicates that attendance peaks in or around July of each year. As a result, data was collected for this project in July of 1991. Automatic traffic counters were used to conduct 5 day machine counts at Presidio entrances/exits from Wednesday July 17 through Sunday July 21. 48 hour machine counts were collected at 13 locations within the Presidio for the period Tuesday July 23 through Wednesday July 24. Due to machine counter hose damages during the count period, two locations were re-counted on Tuesday and Wednesday (July 30-31) of the following week.

Finally, since this data is being compared Army data collected in January of 1988, additional counts were collected in January 1992 to verify the seasonal variation in traffic volumes from January to July. These final counts were also used to verify traffic volumes at two locations where the July counts appeared to be in error or out of the ordinary.

Presidio Traffic Analysis Data Collection Locations and Weekday and Weekend ADT'S

Presidio of San Francisco, CA

July, [illegible]

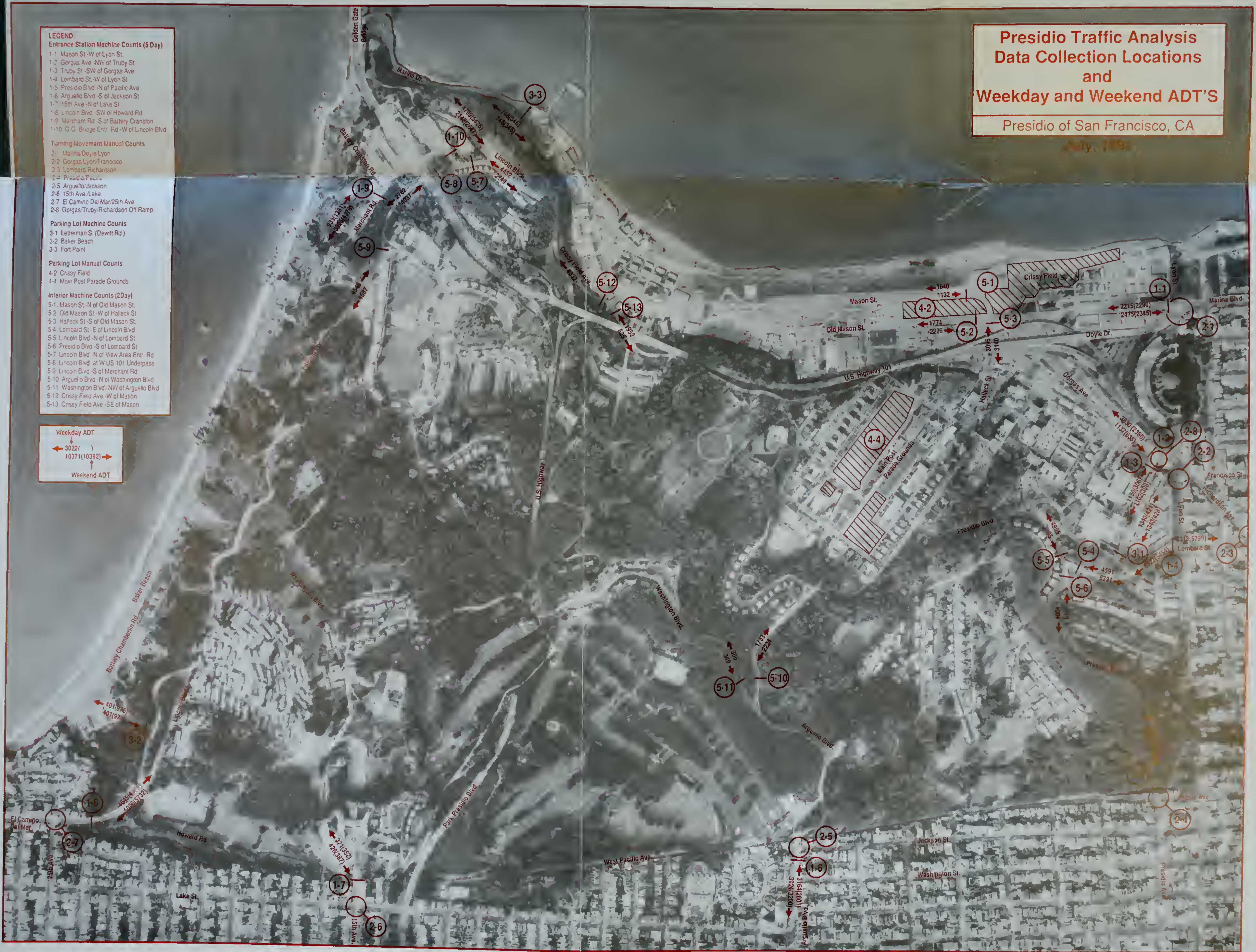


Figure 1

Table 1

PRESIDIO MACHINE COUNT SUMMARY

(ADJUSTED DATA)

TASK No.	COUNTER LOCATION / TRAFFIC DIRECTION	TUE.	WED.	THU.	FRI.	SAT.	SUN.	WEEKDAY ADT	WEEKEND ADT
1-1	Mason St. - West of Lyon St. (Eastbound)		2365	2456	2604	2281	2408	2475	2345
1-1	Mason St. - West of Lyon St. (Westbound)		2142	2185	2317	2112	2468	2215	2290
1-2	Gorgas Ave. - NW of Truby St. (Westbound)		3773	3822	3896	2613	2147	3830	2380
1-2	Gorgas Ave. - NW of Truby St. (Eastbound)		1023	1115	1274	651	624	1137	638
1-3	Truby St. - SW of Gorgas Ave. (Northbound)		1183	1137	1071	333	279	1130	306
1-3	Truby St. - SW of Gorgas Ave. (Southbound)		1073	1126	1107	339	277	1102	308
1-4	Lombard St. - West of Lyon St. (Eastbound)	6144	6198	6073	6839	6427	5172	6313	5799
1-4	Lombard St. - West of Lyon St. (Westbound)	6390	6462	6335	6919	5918	4990	6527	5454
1-5	Presidio Blvd. - North of Pacific Ave. (Northbound)	4887	4866	4765	5083	4540	4283	4900	4412
1-5	Presidio Blvd. - North of Pacific Ave. (Southbound)	3846	3712	3788	3880	3379	3341	3807	3360
1-6	Arguello Blvd. - South of Jackson St. (Northbound)	2925	3145	3204	3380	2830	2771	3164	2801
1-6	Arguello Blvd. - South of Jackson St. (Southbound)	4044	3820	3792	4040	3307	3093	3924	3200
1-7	15th Ave. - North of Lake St. (Northbound)	385	340	349	410	325	379	371	352
1-7	15th Ave. - North of Lake St. (Southbound)	389	406	441	468	379	394	426	387
1-8	Lincoln Blvd. - SW of Howard Rd. (Northbound)	4364	4646	4480	5093	5247	4562	4645	4904
1-8	Lincoln Blvd. - SW of Howard Rd. (Southbound)	4775	5188	4891	5172	5576	5887	5006	5732
1-9	Merchant Rd. - South of Battery Cranston (Northbound)		867	947	1002	1082	1680	939	1381
1-9	Merchant Rd. - South of Battery Cranston (Southbound)		2886	3032	3156	3869	4883	3025	4376
1-10	G.G. Bridge Viewing Entr. W of Lincoln Road (Northbound)		4357	4613	5428	5296	5556	4799	5426
1-10	G.G. Bridge Viewing Entr. W of Lincoln Road (Southbound)		1896	2157	2390	2711	2582	2148	2647
3-1	Letterman South (Dewitt Rd.) (Northbound)		1326	1368	1326	457	384	1340	421
3-1	Letterman South (Dewitt Rd.) (Southbound)		1291	1384	1345	462	393	1340	428
3-2	Baker Beach on Gibson Rd. (Eastbound)			544	660	886	1063	602	975
3-2	Baker Beach on Gibson Rd. (Westbound)			543	659	887	1064	601	976
3-3	Fort Point at Ranger Office (Northbound)	728	1586	318	358	363	329	748	346
3-3	Fort Point at Ranger Office (Southbound)	728	1586	318	358	363	329	748	346
5-1	Mason St. - North of Old Mason St. (Eastbound)	1179	1084					1132	
5-1	Mason St. - North of Old Mason St. (Westbound)	1693	1587					1640	
5-2	Old Mason St. - West of Halleck St. (Eastbound)	2358	2213					2286	
5-2	Old Mason St. - West of Halleck St. (Westbound)	1819	1728					1774	
5-3	Halleck St. - South of Old Mason St. (Northbound)	3130	3059					3095	
5-3	Halleck St. - South of Old Mason St. (Southbound)	3174	3106					3140	
5-4	Lombard St. - East of Lincoln Blvd. (Eastbound)	6737	6845					6791	
5-4	Lombard St. - East of Lincoln Blvd. (Westbound)	4598	4583					4591	
5-5	Lincoln Blvd. - North of Lombard St. (Northbound)	5092	4897					4995	
5-5	Lincoln Blvd. - North of Lombard St. (Southbound)	3955	4034					3995	
5-6	Presidio Blvd. - South of Lombard St. (Northbound)	6256	6007					6132	
5-6	Presidio Blvd. - South of Lombard St. (Southbound)	3947	4060					4004	
5-7	Lincoln Blvd. - North of Viewing Area Entr. (Eastbound)	2099	2180					2140	
5-7	Lincoln Blvd. - North of Viewing Area Entr. (Westbound)	4478	4486					4482	
5-8	Lincoln Blvd. at US101 Underpass (Northbound)	3976	4098					4037	
5-8	Lincoln Blvd. at US101 Underpass (Southbound)	2719	2804					2762	
5-9	Lincoln Blvd. - South of Merchant Rd. (Northbound)	4416	4676					4546	
5-9	Lincoln Blvd. - South of Merchant Rd. (Southbound)	4587	4787					4687	
5-10	Arguello Blvd. - North of Washington Blvd. (Northbound)	1714	1752					1733	
5-10	Arguello Blvd. - North of Washington Blvd. (Southbound)	2152	2295					2224	
5-11	Washington Blvd. - NW of Arguello Blvd. (Northbound)	954	977					966	
5-11	Washington Blvd. - NW of Arguello Blvd. (Southbound)	329	368					349	
5-12	Crissy Field Ave. West of Mason (Westbound)	4501	4162					4332	
5-13	Crissy Field Ave. SE of Mason (Eastbound)	854	795					825	
5-13	Crissy Field Ave. SE of Mason (Westbound)	1986	1917					1952	

Peak Hour Traffic Volumes

In most cases, traffic flow is not uniform throughout any given 24 hour period. As a result, ADTs don't provide all of the desired information about traffic flow since they don't give specific information about the traffic load that occurs during "rush hour" or other traffic peaks. In general, these peaks are expected to occur on weekdays, immediately before and after normal workday hours. The afternoon peak is usually the largest.

The City of San Francisco generally considers 4:00 PM to 6:00 PM to be their "Peak Period" for travel demand. This is based on the assumption that the majority of traffic creating their peaks in travel demand is commuter-related. Within this period they usually try to identify a "Peak Hour", which is defined as the four contiguous 15 minute intervals that have the highest cumulative traffic volume. Traffic studies, including volume counts, intersection analyses, and delay studies are generally conducted during the "Peak Period" if possible. Statistics arising from those studies are often expressed in terms of the Peak Period and/or Peak Hour.

Traffic on the Presidio includes a mix of commuter trips and non-commuter trips which are assumed to be largely recreation-related. Upon final transfer of the Presidio from the Department of Defense to the Park Service, this mix will probably change even more. As a result, the assumption that traffic will usually peak on the Presidio during the City's peak period is not necessarily valid. Table 2 illustrates this point by showing the actual observed peak at each counter location shown on Figure 1. Table 2 also shows the typical (assumed) weekday peak hours for each counter location, and the overall weekend peak hours (observed) for those counter locations where weekend data was collected.

Comparison of the values in Table 2 reveals that traffic on the Presidio does not follow normal commuter-related patterns. Although noticeable peaking does occur near the assumed weekday morning and afternoon peaks, larger traffic volumes are generated over many Presidio roadways at other times. Higher volumes occur on Friday afternoons and throughout the period 10:00 AM to 8:00 PM on Saturdays and Sundays. The observed weekend peaks during this study were 3:00 - 4:00 PM on Saturday, and 1:00 - 2:00 PM on Sunday. Unlike typical weekday traffic peaks, weekend traffic on the Presidio climbed steadily throughout the morning, stayed at or near its peak throughout most of the afternoon, and then decreased steadily throughout the late afternoon and early evening.

These patterns indicate that while Presidio traffic levels are affected by commuter trips, recreational and non-work-related traffic has a greater influence.

TABLE 2

PRESIDIO PEAK HOUR MACHINE COUNT SUMMARY

TASK No.	COUNTER LOCATION / TRAFFIC DIRECTION	OBSERVED PEAKS No. Vehicles	OBSERVED PEAKS TIME / DAY		TYPICAL WEEKDAY PEAKS WEDNESDAY 7:00 - 8:00 AM	TYPICAL WEEKDAY PEAKS WEDNESDAY 4:00 - 5:00 PM	OBSERVED WEEKEND PEAKS SATURDAY 3:00-4:00P	OBSERVED WEEKEND PEAKS SUNDAY 1:00 - 2:00 PM
1-1	Mason St. - West of Lyon St. (Eastbound)	359	4:45 - 5:45 PM	Friday	78	303	242	259
1-1	Mason St. - West of Lyon St. (Westbound)	327	1:45 - 2:45 PM	Sunday	128	177	190	296
1-2	Gorgas Ave. - NW of Truby St. (Westbound)	394	6:45 - 7:45 AM	Friday	364	249	242	237
1-2	Gorgas Ave. - NW of Truby St. (Eastbound)	174	3:45 - 4:45 PM	Friday	6	158	119	49
1-3	Truby St. - SW of Gorgas Ave. (Northbound)	153	3:30 - 4:30 PM	Monday	31	127	24	33
1-3	Truby St. - SW of Gorgas Ave. (Southbound)	133	7:15 - 8:15 AM	Friday	121	44	24	23
1-4	Lombard St. - West of Lyon St. (Eastbound)	641	3:15 - 4:15 PM	Saturday	279	578	570	577
1-4	Lombard St. - West of Lyon St. (Westbound)	529	4:15 - 5:15 PM	Friday	343	445	467	455
1-5	Presidio Blvd. - North of Pacific Ave. (Northbound)	438	4:45 - 5:45 PM	Friday	309	371	354	429
1-5	Presidio Blvd. - North of Pacific Ave. (Southbound)	391	4:00 - 5:00 PM	Tuesday	158	339	289	248
1-6	Arguello Blvd. - South of Jackson St. (Northbound)	352	2:30 - 3:30 PM	Sunday	268	174	203	300
1-6	Arguello Blvd. - South of Jackson St. (Southbound)	494	3:45 - 4:45 PM	Friday	111	439	317	340
1-7	15th Ave. - North of Lake St. (Northbound)	49	12:00 - 1:00 PM	Friday	22	19	21	36
1-7	15th Ave. - North of Lake St. (Southbound)	64	4:00 - 5:00 PM	Thursday	17	57	28	48
1-8	Lincoln Blvd. - SW of Howard Rd. (Northbound)	680	3:30 - 4:30 PM	Saturday	274	469	507	606
1-8	Lincoln Blvd. - SW of Howard Rd. (Southbound)	766	4:15 - 5:15 PM	Saturday	315	576	668	614
1-9	Merchant Rd. - South of Battery Cranston (Northbound)	344	12:45 - 1:45 PM	Sunday	52	78	83	337
1-9	Merchant Rd. - South of Battery Cranston (Southbound)	474	4:00 - 5:00 PM	Sunday	167	275	321	441
1-10	G.G. Bridge Viewing Entr. W of Lincoln Road (Northbound)	709	2:30 - 3:30 PM	Sunday	150	486	491	624
1-10	G.G. Bridge Viewing Entr. W of Lincoln Road (Southbound)	304	4:00 - 5:00 PM	Sunday	126	146	245	195
3-1	Letterman South (Dewitt Rd.) (Northbound)	156	7:15 - 8:15 AM	Monday	150	51	29	24
3-1	Letterman South (Dewitt Rd.) (Southbound)	169	3:00 - 4:00 PM	Thursday	60	136	30	29
3-2	Baker Beach on Gibson Rd. (Eastbound)	160	6:45 - 7:45 PM	Sunday	*	*	103	118
3-2	Baker Beach on Gibson Rd. (Westbound)	148	1:30 - 2:30 PM	Sunday	*	*	93	134
3-3	Fort Point on Long Ave. (Northbound)	325	1:30 - 2:30 PM	Sunday	24	114	243	281
3-3	Fort Point on Long Ave. (Southbound)	167	2:15 - 3:15 PM	Sunday	11	39	119	89
5-1	Mason St. - North of Old Mason St. (Eastbound)	117	1:00 - 2:00 PM	Tuesday	70	71		
5-1	Mason St. - North of Old Mason St. (Westbound)	202	3:45 - 4:45 PM	Tuesday	75	150		
5-2	Old Mason St. - West of Halleck St. (Eastbound)	294	12:15 - 1:15 PM	Wednesday	44	225		
5-2	Old Mason St. - West of Halleck St. (Westbound)	226	1:45 - 2:45 PM	Tuesday	27	159		
5-3	Halleck St. - South of Old Mason St. (Northbound)	357	11:00AM-12:00PM	Tuesday	116	261		
5-3	Halleck St. - South of Old Mason St. (Southbound)	389	12:15 - 1:15 PM	Wednesday	128	261		
5-4	Lombard St. - East of Lincoln Blvd. (Eastbound)	614	4:15 - 5:15 PM	Wednesday	265	574		
5-4	Lombard St. - East of Lincoln Blvd. (Westbound)	411	4:00 - 5:00 PM	Wednesday	245	310		
5-5	Lincoln Blvd. - North of Lombard St. (Northbound)	471	12:00 - 1:00 PM	Wednesday	298	312		
5-5	Lincoln Blvd. - North of Lombard St. (Southbound)	503	4:00 - 5:00 PM	Wednesday	117	503		
5-6	Presidio Blvd. - South of Lombard St. (Northbound)	688	4:00 - 5:00 PM	Tuesday	254	567		
5-6	Presidio Blvd. - South of Lombard St. (Southbound)	330	5:00 - 6:00 PM	Tuesday	247	279		
5-7	Lincoln Blvd. - North of Viewing Area Entr. (Eastbound)	204	12:00 - 1:00 PM	Wednesday	164	107		
5-7	Lincoln Blvd. - North of Viewing Area Entr. (Westbound)	634	3:45 - 4:45 PM	Tuesday	111	511		
5-8	Lincoln Blvd. at US101 Underpass (Northbound)	405	3:45 - 4:45 PM	Tuesday	193	379		
5-8	Lincoln Blvd. at US101 Underpass (Southbound)	312	4:00 - 5:00 PM	Tuesday	88	280		
5-9	Lincoln Blvd. - South of Merchant Rd. (Northbound)	445	5:15 - 6:15 PM	Wednesday	227	374		
5-9	Lincoln Blvd. - South of Merchant Rd. (Southbound)	519	4:00 - 5:00 PM	Wednesday	206	519		
5-10	Arguello Blvd. - North of Washington Blvd. (Northbound)	218	6:45 - 7:45 AM	Wednesday	198	72		
5-10	Arguello Blvd. - North of Washington Blvd. (Southbound)	323	4:00 - 5:00 PM	Wednesday	70	323		
5-11	Washington Blvd. - NW of Arguello Blvd. (Northbound)	130	4:30 - 5:30 PM	Wednesday	51	106		
5-11	Washington Blvd. - NW of Arguello Blvd. (Southbound)	62	6:45 - 7:45 AM	Thursday	37	13		
5-12	Crissy Field Ave. West of Mason (Westbound)	711	3:45 - 4:45 PM	Tuesday	100	549		
5-13	Crissy Field Ave. SE of Mason (Eastbound)	190	10:15 - 11:15 AM	Thursday	50	70		
5-13	Crissy Field Ave. SE of Mason (Westbound)	227	3:45 - 4:45 PM	Tuesday	140	190		

* No Data Available

Seasonal Variations

Just as traffic volumes are not constant throughout any given 24 hour period, ADTs are not necessarily constant throughout the year. Commuter trips often show less seasonal variation than other types of trips. Recreational trips usually have more seasonal variation than others.

As mentioned earlier in this report, data has been collected for the month of July since this is the expected peak use period for attractions within the Golden Gate National Recreation Area. This is being compared with existing data from a January 1988 survey to quantify traffic volume changes since then. As a result, some method is required to account for traffic volume fluctuations attributable to the time of year.

The Golden Gate Bridge, Highway, and Transportation District records monthly totals for vehicles passing through its toll booths on the Golden Gate Bridge. This essentially provides an ADT for southbound traffic on the bridge. Although this data is assumed to be strongly related to commuter trips, it does give an indication of monthly variations in the area. In the absence of any other year-around traffic count data near the Presidio, this has been used to estimate the Presidio's seasonal variation in traffic volumes.

Figure 2 illustrates that Golden Gate Bridge traffic peaks in the period June - August for both weekday travel and weekend travel. Seasonal variations in weekend travel are greater than those for weekday travel, presumably due to the higher proportion of commuter trips on weekdays (commuter trips usually don't vary as much from season to season). The data collected in the Army's 1988 study only addressed weekday travel volumes, so the weekday fluctuation from January to July is of primary importance in making comparisons. The Golden Gate Bridge data indicates that in general, weekday travel in January amounts to 94% of the average monthly traffic. July weekday travel amounts to 105% of the average monthly traffic, or 112% of January's traffic volume.

FIGURE 2

SEASONAL VARIATION ANALYSIS

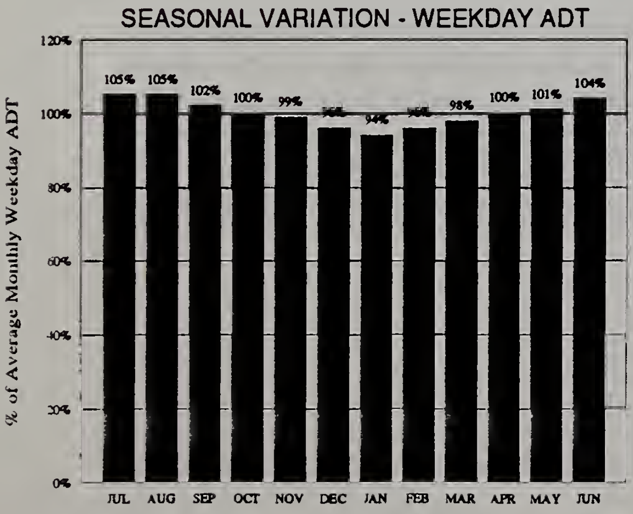
USING DATA FROM THE GOLDEN GATE BRIDGE

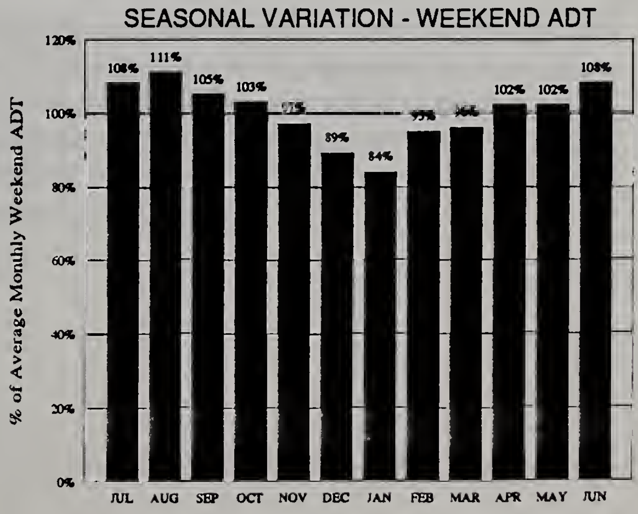
AVERAGE MONTHLY ADT (WEEKDAYS, SOUTHBOUND ONLY)

MONTH	FY 86/87	FY 87/88	FY 88/89	FY 89/90	FY 90/91	5 YEAR TOTAL OF AVERAGES	PERCENT OF TOTAL	PERCENT OF AVERAGE
JUL	61201	63824	65244	64859	63777	318905	8.7%	105%
AUG	62137	64701	65484	65248	63975	321545	8.8%	105%
SEP	59446	62088	63117	62966	62161	309778	8.5%	102%
OCT	58206	60726	60916	64759	60327	304934	8.3%	100%
NOV	58202	58924	56090	69207	59516	301939	8.3%	99%
DEC	56807	58521	59725	58960	58419	292432	8.0%	96%
JAN	55907	58222	57320	57265	56503	285217	7.8%	94%
FEB	57317	59416	58244	58819	58517	292313	8.0%	96%
MAR	58636	61395	60341	60538	59314	300224	8.2%	98%
APR	61068	61682	61743	61136	60385	306014	8.4%	100%
MAY	61554	62172	62343	61356	61725	309150	8.5%	101%
JUN	62959	63675	63424	63438	62339	315835	8.6%	104%
					TOTAL	3658286	100.0%	~
					AVERAGE	304857	~	100%

AVERAGE MONTHLY ADT (WEEKENDS, SOUTHBOUND ONLY)

MONTH	FY 86/87	FY 87/88	FY 88/89	FY 89/90	FY 90/91	5 YEAR TOTAL OF AVERAGES	PERCENT OF TOTAL	PERCENT OF AVERAGE
JUL	56943	59033	59461	59114	58917	293468	9.0%	108%
AUG	58776	61154	60591	61432	60739	302692	9.3%	111%
SEP	55494	57866	57896	56693	58279	286228	8.7%	105%
OCT	53657	55553	56075	60986	55826	282097	8.6%	103%
NOV	52231	52446	51223	56983	52178	265061	8.1%	97%
DEC	47713	48392	49938	48552	48670	243265	7.4%	89%
JAN	44319	45477	47402	45662	45115	227975	7.0%	84%
FEB	51869	53153	50519	50767	51451	257759	7.9%	95%
MAR	53261	56397	51578	52486	48039	261761	8.0%	96%
APR	57149	55607	54976	55548	55646	278926	8.5%	102%
MAY	52371	57122	58143	54059	56441	278136	8.5%	102%
JUN	58888	59370	58920	59348	58433	294959	9.0%	108%
					TOTAL	3272327	100.0%	~
					AVERAGE	272694	~	100%


SEASONAL VARIATION - WEEKDAY ADT


SEASONAL VARIATION - WEEKEND ADT

Entrance/Exit Volumes

The Road System Study conducted in 1988 specifically addressed the average traffic entering and leaving the Presidio each day. The study found that 52,687 vehicles were counted at Presidio gateways on an average weekday in January of 1988. The study found that 24.4 percent of this traffic occurred at the Lombard Street entrance, 15.3 percent at the Presidio Boulevard entrance, 14.7 percent at the Lincoln Boulevard entrance, and 16% at the Golden Gate Viewing Area/Merchant Road entrances with the rest distributed throughout the remaining gates.

1991 traffic counts indicate that 57,996 vehicles crossed the Presidio gateways on an average weekday in July. Counts at Lombard, Presidio, Lincoln, and Golden Gate/Merchant Road amount to 22.1%, 15.0%, 16.7%, and 18.8% of the total entering/exiting traffic respectively. A comparison of the two studies indicates that the geographic distribution of entering/exiting traffic remains essentially unchanged, while the total volume is roughly 10% higher in the 1991 study. Table 3 provides a summary comparison between the two studies.

Although the gateway traffic volumes increased from the 1988 study to this study, seasonal variation between the two data collection months (January-1988, July-1991) could account for a 12% increase. As a result, the annual average traffic is estimated to have decreased by nearly 2% from 1988 to 1991.

1991 traffic counts also indicate that 56,063 vehicles crossed Presidio gateways on an average weekend day in July. The distribution of traffic between gateways is shown for the weekday and weekend cases on maps in the Appendix to this report. They indicate that gateways carrying the most traffic are Lombard Street, Presidio Boulevard, Lincoln Boulevard, and the Golden Gate Viewing Area/Merchant Road freeway entrances, similar to both weekday studies.

Comparisons of the weekday/weekend distributions however, show that weekend traffic is higher along the coasts, and lower at the inland gateways. The Golden Gate Viewing Area and Merchant Road gateways increase the most on weekends, while the Gorgas Avenue gate decreases the most on weekends. This slight redistribution of traffic appears to confirm the assumption that weekend traffic has more recreational and non-work-related trips, since these are better served by the Presidio's coastal gateways.

The slight discrepancy between vehicles entering and leaving the Presidio each day that appears in the 1988 and 1991 data in Table 3 and the maps in the Appendix is attributable to two factors. First, temporary traffic counters usually introduce a small error by overcounting or undercounting a small percentage of vehicles. Second, the Palace of Fine Arts, located near the northeast corner of the Presidio, actually provides a limited access into and out of the Presidio. This entrance/exit was not counted in either study.

TABLE 3
COMPARISON of PRESIDIO GATEWAY ADTs

	January, 1988 Survey		July, 1991 Survey			
COUNTER LOCATION / TRAFFIC DIRECTION	ENTERING Weekday	LEAVING Weekday	ENTERING Weekday (See Note)	LEAVING Weekday (See Note)	CHANGE	PERCENT CHANGE **
Mason St. - West of Lyon St. (Westbound)	2762		2215		-547	-20%
Mason St. - West of Lyon St. (Eastbound)		2460		2475	15	1%
Gorgas Ave. / Truby St. (Westbound/Southbound)	2813		3354		541	19%
Gorgas Ave. / Truby St. (Eastbound/Northbound)		2363		1406	-957	-40%
Lombard St. - West of Lyon St. (Westbound)	6672		6527		-145	-2%
Lombard St. - West of Lyon St. (Eastbound)		6193		6313	120	2%
Presidio Ave. - North of Pacific Ave. (Northbound)	3771		4900		1129	30%
Presidio Ave. - North of Pacific Ave. (Southbound)		4271		3807	-464	-11%
Arguello Blvd. - South of Jackson St. (Northbound)	2090		2658		568	27%
Arguello Blvd. - South of Jackson St. (Southbound)		1998		2982	984	49%
15th Ave. - North of Lake St. (Northbound)	120 *		371		251	209%
15th Ave. - North of Lake St. (Southbound)		1041 *		426	-615	-59%
Lincoln Blvd. - SW of Howard Rd. (Northbound)	3710		4645		935	25%
Lincoln Blvd. - SW of Howard Rd. (Southbound)		4031		5006	975	24%
Merchant Rd. - South of Battery Cranston (Southbound)	2362		3025		663	28%
Merchant Rd. - South of Battery Cranston (Northbound)		721		939	218	30%
G.G. Bridge Viewing Entr. W of Lincoln Road (Southbound)	1544		2148		604	39%
G.G. Bridge Viewing Entr. W of Lincoln Road (Northbound)		3765		4799	1034	27%
TOTALS	25844	26843	29843	28153	5309	10%

NOTES: * These 1988 counts appear to be unusual or inaccurate.

** Refer to Seasonal Variation discussion in this report when comparing January - July Counts.

Values in this table are based on Weekday Machine Counts shown in Figure 1 and Table 1.

Arguello Blvd. machine counts have been adjusted to include/exclude traffic turning from/to Jackson Street outside the Presidio.

Gorgas Ave./Truby Street machine counts have been combined and adjusted to remove traffic that is moving between the gates without leaving the Presidio.

Interior Traffic Patterns

On site observations, ADTs, and peak hour volume information collected for this study indicate some trends in the way traffic moves within and through the Presidio. Several of the major routes in the Presidio are used as commuter routes. This results in higher ADT values, higher traffic demand during peak commuter travel periods, and more aggressive driving characteristics on these routes.

Lombard Street and Presidio Boulevard appear to serve a significant amount of through traffic in the southeast corner of the Presidio. These roadways combine to form a fairly direct route between the areas immediately south and east of the Presidio. More importantly however, this route provides a fairly direct connection to eastbound Highway 101, and from westbound Highway 101. Severe terrain outside the base in the area makes these connections more difficult on the nearby city streets. As a result, some commuters living south of the Presidio and travelling to/from downtown San Francisco appear to be using this as a commuter route.

Lincoln Boulevard from the southwest Presidio entrance to the Golden Gate Viewing Area carries a significant amount of through traffic that is moving between San Francisco and U.S. Highway 101. Arguello Boulevard to Washington Boulevard appears to carry a smaller portion of through traffic between the same points. Both routes are probably influenced by congestion on Park Presidio Boulevard since they parallel its path. Both routes are signed for much lower speeds than Park Presidio, and neither is as direct. However, increasing congestion on Park Presidio could eventually force more traffic on to these routes.

High ADT directional imbalances at counter locations 1-9 and 1-10 near the Golden Gate Viewing Area (See Figure 1) indicate that much of the traffic through the area is using U.S. Highway 101 to/from Marin County. A significant portion of this traffic appears to be using Lincoln Boulevard from/to the Presidio's southwest entrance, as evidenced by the imbalance at counter location 5-8.

The high ADT directional imbalances for Crissy Field Avenue and the portion of Lincoln Boulevard at counter locations 5-12 and 5-7 indicate that traffic on these routes is similarly influenced. They appear to carry traffic from Crissy Field, the Main Post, and possibly even the Letterman Complex to westbound 101 at the Golden Gate Viewing Area. The lack of matching eastbound traffic at counter location 5-7 appears to be related to an imbalance at Gorgas Avenue, affecting the same areas within the Presidio. Although these routes indicate a significant directional flow within the Presidio toward the west, it is unlikely that they serve much external through traffic due to congestion on Highway 101. Travel on these Presidio roadways is much less direct and much slower than on the main (Highway 101) route.

The directional imbalance at the Gorgas Avenue entrance (counter location 1-2) is probably due to the fact that it is relatively easy to exit eastbound 101 at this location, but much more difficult to access westbound 101. As a result, traffic from Marin County appears to be using Gorgas Avenue to enter the Presidio, but then using the Mason Street and Golden Gate Viewing Area entrances to return to Marin County.

The imbalance at the Mason Street entrance (counter location 1-1) is probably due in part to the difficult exit from Gorgas Avenue to westbound Highway 101. The Mason Street entrance appears to be affected by the Marina/Doyle/Mason intersection geometry as well. The intersection allows traffic exiting the Presidio on Mason to access eastbound Marina or westbound Doyle (Highway 101). However, only westbound traffic on Marina is allowed to enter the Presidio on Mason. Eastbound traffic from 101 on Doyle is not allowed to make the left turn onto Mason street, so this movement is presumably redirected to the Gorgas Avenue entrance.

The Palace of Fine Arts (located between Mason Street and Gorgas Avenue) provides "back door" entrances to the Presidio supplementing the Gorgas and Mason entrances. These routes are difficult to find however, and presumably unknown to the average motorist.

Non-commuter traffic within the Presidio includes tourist trips and NPS tours to attractions such as the Golden Gate Bridge Viewing Area, Fort Point, and the Main Post. Other recreational trips within the Presidio affect roadways near the golf course, the Julius Kahn public playground, Baker Beach, and the portion of Crissy Field that is popular for wind surfing. Business related traffic on the Presidio is most prevalent in the Main Post / Letterman complex area, near the Commissary and PX on Crissy Field, at the Fort Scott complex, and around the Army maintenance and supply buildings on the west end of Crissy Field.

Non-commuter traffic associated with recreational use and normal daily business on the Presidio does not produce significant recognizable patterns. The roadway system within the Presidio has many local roadways, short connectors, and redundant routes which are used to varying degrees by this type of interior traffic.

Intersection Capacity Analyses

Turning movement counts were manually collected at seven intersections near the Presidio's entrance/exit gateways at the same time that continuous machine counts were being conducted at these locations. The turning movement counts were taken during AM and PM peak travel periods on either a Wednesday or a Thursday, in order to document normal traffic patterns during peak use.

Seven intersections near Presidio gateways were selected for capacity analysis to determine their adequacy now, and assess their ability to accommodate additional capacity if needed. These consist of two high capacity signalized intersections, and five unsignalized intersections with significantly lower capacities.

Turning movements were also collected at the Gorgas Avenue / Truby Street intersection to estimate the number of vehicles moving between the two gates without intending to leave the Presidio. This data was used to adjust maching counts taken at these two locations to correctly determine the number of vehicles leaving or entering the base.

Turning movement count data was used to calculate a "Level of Service" (LOS) for each intersection except Gorgas / Truby, providing an overall description of the delay vehicles encounter when passing through each intersection. Calculations were made with a computer program developed by the Transportation Research Board to duplicate the method used in their 1985 Highway Capacity Manual. Table 4 describes the meaning of each LOS rating. LOS C is often considered the lowest desirable rating for any movement within an intersection.

Mason/Marina/Doyle/Lyon and Richardson/Lombard are signalized intersections near gateways on the Presidio's eastern boundary. Both intersections carry heavy traffic loads associated with U.S. Highway 101 in addition to those vehicles entering or exiting the Presidio. Manual turning movement counts were taken at both intersections, but the Richardson/Lombard intersection was videotaped first, and then counted from the videotape to ensure accuracy despite its extremely high volumes. The existing signal phase sequences were timed and recorded for each intersection.

The Mason/Marina/Doyle/Lyon intersection was modelled as a four leg intersection by combining Mason Street with the north leg of Lyon Street. The intersection is semi-actuated, with detector loops on the North-South legs (Lyon and Mason Streets). It has a pedestrian crossing phase (activated by button) for relatively light pedestrian traffic across Marina/Doyle. The intersection was found to operate at Level of Service C during its AM peak hour, and Level of Service E at its PM peak hour. Because of its strong commuter related peaks (eastbound AM, westbound PM) this intersection is operating very close to its capacity in its current configuration.

The Richardson/Lombard intersection was modelled as a T intersection, with the main Richardson to Lombard connection considered the East/West street. Lombard west of the intersection was considered the North/South leg to accommodate the computer model,

despite its actual orientation. The intersection has pre-timed signal phasing that is well coordinated with adjacent signals on U.S. 101. With its present configuration and signal phasing, the intersection operates at Level of Service E during its AM peak hour, and LOS B during its PM peak hour.

The Lombard/Richardson intersection's low LOS ratings are due in part to narrow lane widths, but mostly to the high directional split (eastbound AM, westbound PM) caused by daily commuter traffic. The intersection functions better in the PM peak because the primary movement during this peak (westbound through) is accommodated with four lanes. The primary movement in the AM peak (eastbound through) however, is carried with only three traffic lanes. (See the Intersection Turning Movement Diagrams in the Appendix to this report.)

Table 5 summarizes the Level of Service ratings for each intersection that was studied, as well as the LOS for each movement within signalized intersections. In general, it is possible to assign an overall LOS to a signalized intersection because to some extent, all movements are related to one another via the signal timing/phasing. At unsignalized intersections however, movements are not necessarily related to one another. For instance, on a 4-way intersection with 2-way stop sign control, through traffic on the main street is not appreciably affected by stopping traffic on the minor street. For this reason a single LOS usually is not assigned to an entire unsignalized intersection. Instead, LOS ratings are provided for each critical movement.

Table 5 also shows the amount of traffic within each intersection that is travelling to or from the Presidio in the AM and PM peak hours. As expected, the signalized intersections have low percentages of Presidio traffic since they primarily serve major through routes. The Gorgas / Francisco and 15th / Lake intersections also have low Presidio traffic percentages, providing more service to local routes outside the base. The remaining three intersections studied, Presidio / Pacific, Arguello / Jackson, and 25th / El Camino Del Mar have very high Presidio traffic percentages. Level of service through these three intersections is closely related to the Presidio traffic.

The only movements falling below LOS C on unsignalized intersections studied in this project are those that conflict with the predominant Presidio traffic. This occurs at each of the three intersections that has a large percentage of Presidio traffic. In each case the through movement (to or from the Presidio) enjoys a good level of service. Movements conflicting with the dominant flow however, suffer increased delays due to the lower availability of gaps in the main traffic flows. Pacific Avenue traffic crossing Presidio Avenue or turning left on to Presidio is affected as much by the terrain at its location as by traffic volumes. In all cases, the lower level of service movements in unsignalized intersections serve only low volume local access. As a result, they are not a major concern under existing conditions. In general, the LOS ratings for unsignalized intersection movements shown in Tabel 5 indicate that these Presidio entrance/exit intersections are operating well below capacity.

Table 4
Level of Service

Level of Service	Description
Signalized Intersections:	
A	Operations with very low delay (i.e., less than 5.0 seconds per vehicle). This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all.
B	Operations with delay in the range of 5.1 to 15.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
C	Operations with delay in the range of 15.1 to 25.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Operations with delay in the range of 25.1 to 40.0 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Operations with delay in the range of 40.1 to 60.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.
F	Operations with delay in excess of 60.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation, i.e., when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.
Unsignalized Intersections:	
A	Little or no delay.
B	Short traffic delays.
C	Average traffic delays.
D	Long traffic delays.
E	Very long traffic delays.
F	When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queueing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement to the intersection.

Source: 1985 Highway Capacity Manual

Table 5
Level of Service Summary of Evaluated Intersections / % Presidio Traffic

Intersection	Direction-Movement	AM Peak	PM Peak	% Traffic to/from Presidio
Mason/Marina/Doyle/Lyon (Signalized)		C	E	8.2%
	EB-TR	C	B	
	WB-T	A	F	
	WB-R	A	A	
	NB-R	B	B	
	SB-L	B	B	
	SB-R	B	B	
Richardson/Lombard (Signalized)		E	B	9.4%
	EB-TR	F	A	
	WB-L	C	E	
	WB-T	A	A	
	NB-R	B	B	
Gorgas/Francisco	All	A	A	35.5%
Presidio/Pacific	WB-L	A	D	89.1%
	WB-T	A	C	
	WB-R	A	A	
	EB-L	B	D	
	EB-T	A	C	
	EB-R	A	A	
	NB, SB	A	A	
Arguello/Jackson	WB-L	A	C	76.0%
	WB-R	A	A	
	NB, SB	A	A	
15th/Lake	All	A	A	11.1%
25th/El Camino Del Mar	NB-L	A	C	88.2%
	NB-T	A	C	
	NB-R	A	A	
	SB-L	B	D	
	SB-T	A	C	
	SB-R	A	A	
	EB, WB	A	A	

Key to Direction - Movement Symbols

EB = Eastbound
WB = Westbound
NB = Northbound
SB = Southbound

L = Left Turns
T = Through
R = Right Turns
No movement symbol = all movements

Parking Lot Analyses

Background

The Presidio has well over 7000 paved and striped public parking spaces scattered among its developed areas. The base also has unimproved open areas used for public parking, adding capacity for several thousand additional vehicles. Finally, the base has individual garages and/or private parking spaces in its residential areas. Casual observances indicate that some parking areas are heavily used, while others are under utilized, or not used at all.

This study provides more detail on parking availability and usage at a few specific locations within the base. The study focuses on major parking areas at the Letterman Medical Center, the Main Post, and Crissy Field to determine when these areas are used, to what extent they are used, and how much capacity is actually needed at each location. The study also addresses parking conditions and patterns at Baker Beach and Fort Point. These two parking facilities are heavily used during peaks in recreational activity, and are known to have demand that exceeds capacity on occasion.

Crissy Field Parking

Two major parking areas on the east end of Crissy Field were manually counted at one hour intervals during the daytime on Friday July 19, and Saturday July 20. The weather during this period was windy, and mostly cloudy, with daytime temperatures between 60°-70° F. The study area was divided into two separate lots, separated by Mason Street. The results from these counts are summarized in Figures 3 and 4.

The area southwest of Mason is paved and striped for parking, with roughly 280 parking spaces. It received relatively steady but very low utilization throughout both surveys. This parking area is too far from the coast and too far from the PX and Commissary to be regularly used for either destination.

The area northeast of Mason is an undeveloped grass/gravel/sand space with no provisions for organized parking. The area serves a wide variety of recreational users, often including wind surfers. During the study period, this parking area was used noticeably more than the paved area, especially during the lunch hour and mid-afternoon.

The typical parked vehicle on the undeveloped area during periods of casual recreational use is assumed to occupy about 500 square feet. During these periods, parking is unorganized and often spaced out to leave room for assembling sail board equipment. Under these conditions the area has a capacity of roughly 560 spaces.

Under the best of conditions, with regulated and monitored parking, the typical parked vehicle could be assumed to occupy 300-350 square feet in this area. Under these

conditions, most applicable to high use special event parking, the area could conceivably accommodate up to 800-900 vehicles.

Wind surfers (or board sailors) are likely to use Crissy Field parking in greater numbers when other users stay away due to high winds. This type of use is most prevalent in summer months. Anecdotal observations by regular users have indicated that board sailor parking varies greatly, but has peaked at over 400 vehicles on occasion at this location.

Crissy Field Special Event Parking

Crissy Field also provides overflow parking for Fort Mason Center special events. Fort Mason event sponsors are currently required to obtain a use permit from the GGNRA Bay District to use this space whenever their attendance is expected to exceed 1000 people. Shuttle bus service is provided by the sponsor when this occurs.

Approximately 10 events (sometimes one or two per month) that require Crissy Field parking occur at Fort Mason each year. Five or six of these are now annual events. Two of the events in the recent past have been observed to require about 400 parking spaces, but the rest of the events generally require 50 or fewer spaces. The area is occasionally used for special event bus parking when needed.

The GGNRA Bay District permits use of park lands for a variety of other events throughout the year. Permitted use has recently stabilized at about 30 events per year. Attendance ranges from less than one hundred to thousands of people, creating a wide range of parking demand for Crissy Field.

In 1991 there were approximately five large and small scale permitted runs and walk-a-thons, two bicycle events, and numerous weddings, filming permits, and other miscellaneous uses in the Bay District section of the GGNRA (Including Fort Mason and Crissy Field).

Some other large scale events affect use of Crissy Field for parking. They include the 4th of July on Crissy Field, the San Francisco Blues Festival at Upper Fort Mason, and Armed Forces Day (along the waterfront). The San Francisco Marathon generates a significant amount of Crissy Field use, and the two annual board sailing events held at Crissy Field draw approximately 200-300 cars per day over a two week period in June. In addition to the motorists parking at Crissy Field, many of the area's recreational users arrive by foot or on bicycles.

In addition to GGNRA, the Army permits numerous events on the Presidio which affect parking on Crissy Field. Concern has been expressed that the National Park Service, Army, and City of San Francisco coordinate events to ensure that adequate parking is available. Parking in the adjacent Marina neighborhoods and along the Marina green space is filled to capacity on a regular basis, so overflow from Crissy Field into these areas is considered highly undesirable.

FIGURE 3

CRISSY FIELD PARKING ANALYSIS

Friday July 19, 1991

DATE	TIME	Parked Vehicles			Percent Utilized		
		Northeast of Mason St.	Southwest of Mason St.	Combined	Northeast of Mason St.	Southwest of Mason St.	Combined
Fri. 7/19/91	9:00A	19	7	26	3.4%	2.5%	3.1%
	10:00A	14	6	20	2.5%	2.1%	2.4%
	11:00A	17	6	23	3.0%	2.1%	2.7%
	12:00P	47	6	53	8.4%	2.1%	6.3%
	1:00P	18	6	24	3.2%	2.1%	2.9%
	2:00P	24	9	33	4.3%	3.2%	3.9%
	3:00P	30	7	37	5.4%	2.5%	4.4%
	4:00P	34	6	40	6.1%	2.1%	4.8%
	5:00P	39	7	46	7.0%	2.5%	5.5%
	6:00P	33	7	40	5.9%	2.5%	4.8%
	7:00P	32	6	38	5.7%	2.1%	4.5%
	8:00P	13	7	20	2.3%	2.5%	2.4%
AVERAGES		27	7	33	5.0%	2.0%	4.0%

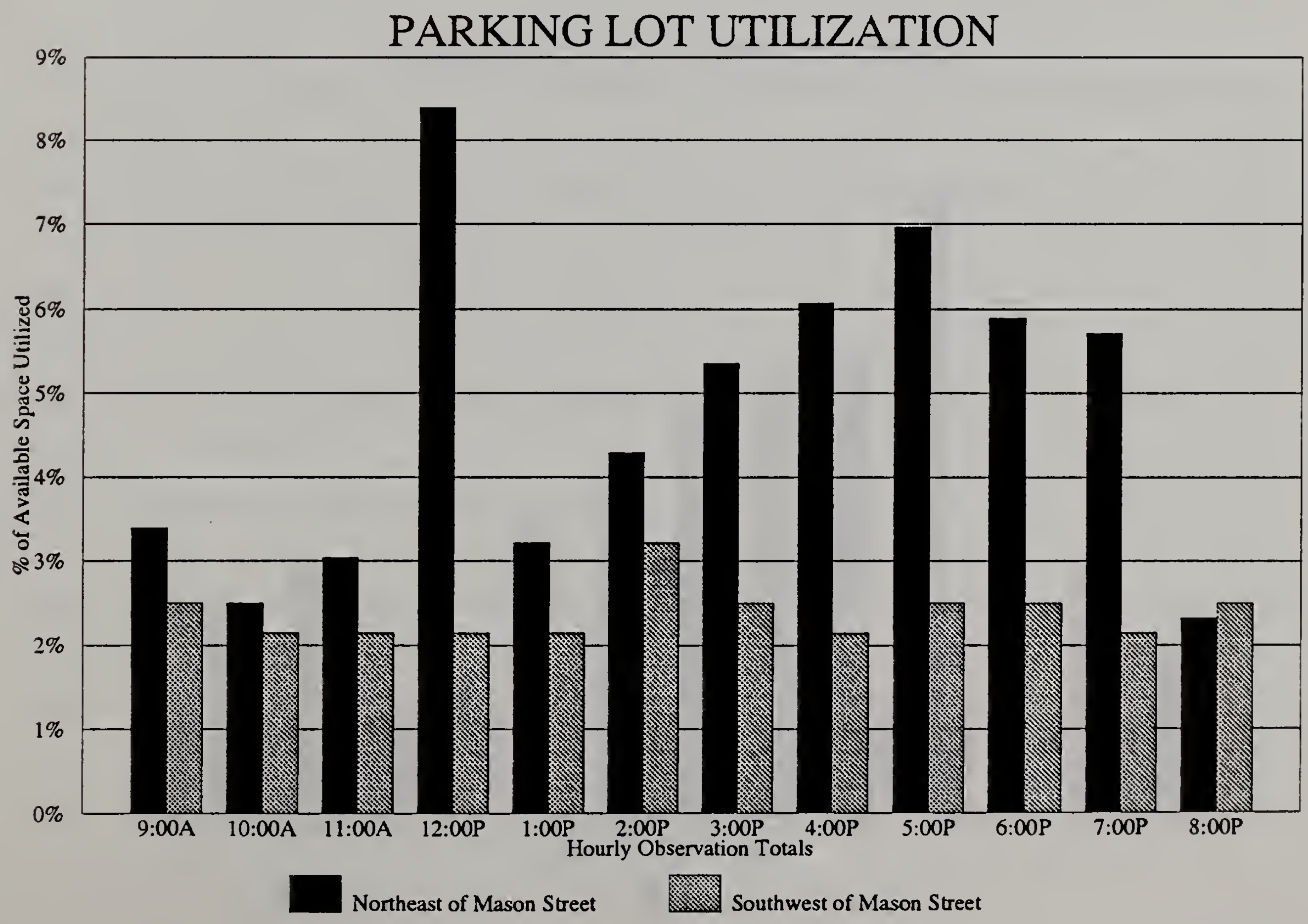


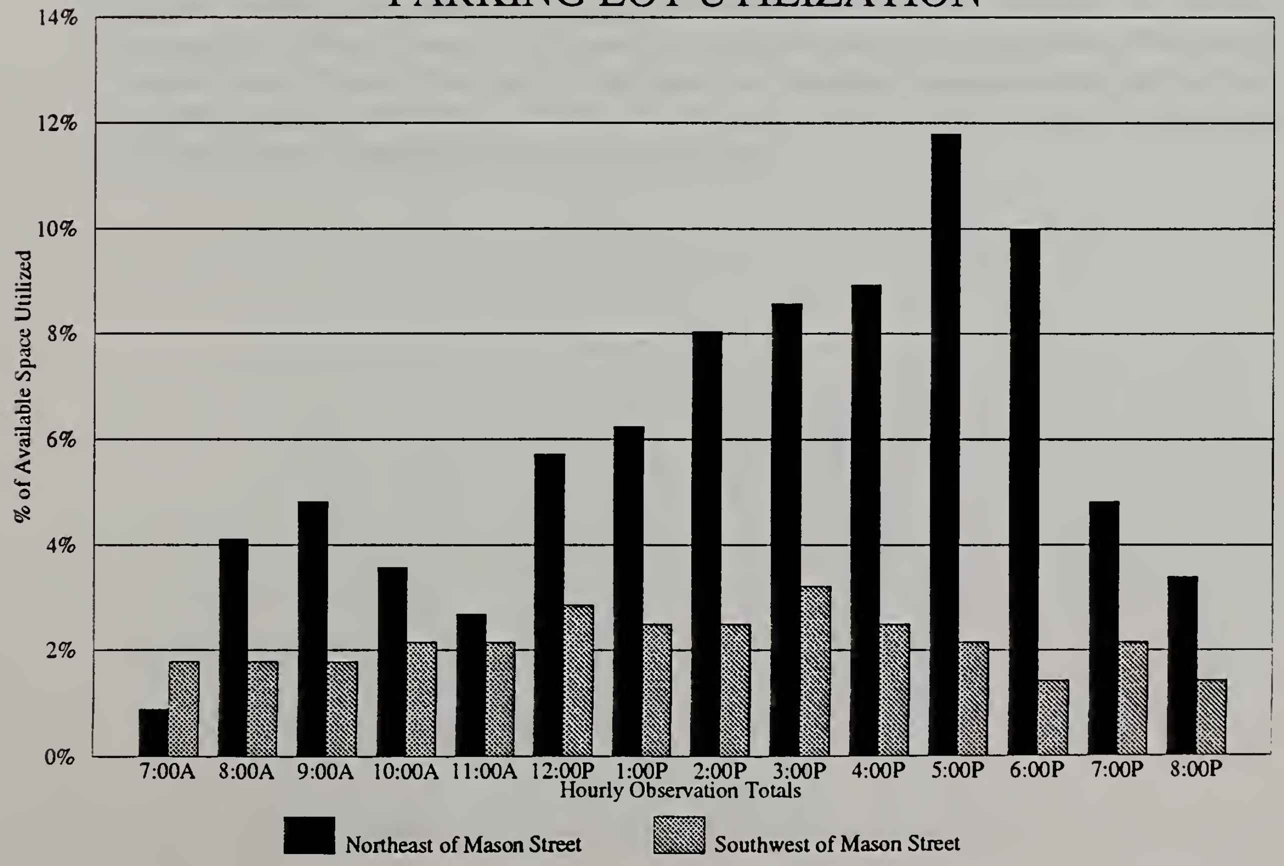
FIGURE 4

CRISSY FIELD PARKING ANALYSIS

Saturday July 20, 1991

DATE	TIME	Parked Vehicles			Percent Utilized		
		Northeast of Mason St.	Southwest of Mason St.	Combined	Northeast of Mason St.	Southwest of Mason St.	Combined
Sat. 7/20/91	7:00A	5	5	10	0.9%	1.8%	1.2%
	8:00A	23	5	28	4.1%	1.8%	3.3%
	9:00A	27	5	32	4.8%	1.8%	3.8%
	10:00A	20	6	26	3.6%	2.1%	3.1%
	11:00A	15	6	21	2.7%	2.1%	2.5%
	12:00P	32	8	40	5.7%	2.9%	4.8%
	1:00P	35	7	42	6.3%	2.5%	5.0%
	2:00P	45	7	52	8.0%	2.5%	6.2%
	3:00P	48	9	57	8.6%	3.2%	6.8%
	4:00P	50	7	57	8.9%	2.5%	6.8%
	5:00P	66	6	72	11.8%	2.1%	8.6%
	6:00P	56	4	60	10.0%	1.4%	7.1%
	7:00P	27	6	33	4.8%	2.1%	3.9%
	8:00P	19	4	23	3.4%	1.4%	2.7%
AVERAGES		33	6	40	7.0%	2.0%	5.0%

PARKING LOT UTILIZATION



Main Post Parking

Parking lots at the Main Post were manually inventoried at one hour intervals over the same period as Crissy Field. The area is divided into three distinct parking lots, referred to as the Parade Grounds (serving Main Post/Sixth Army Headquarters offices), the Officers' Club, and the bowling alley parking lots. In its current configuration, the Parade Grounds has a capacity of about 768 vehicles. The Officer's Club has about 282 spaces, and the bowling alley has about 24 spaces. Data from these inventories is summarized in Figures 5 and 6.

Parking on the Parade Grounds was concentrated at the north and west edges of the lot throughout the survey. Parking was noticeably higher during normal office hours than during the rest of the study periods. The lot was never filled much beyond 1/3 of its capacity, and it appeared to primarily serve the office buildings on Montgomery Street.

The Officer's Club parking area received heavier use throughout most of the weekday survey and the weekend survey. It appeared to serve office buildings on Keyes Avenue as well as the Officer's Club. The lot received steady use throughout normal business hours on the weekday, and more variable use at other times. Parking on the lot peaked near mealtimes, corresponding with use of the Officer's Club. Parking also peaked during wedding receptions which were being held at the club during the study period.

The bowling alley parking area appeared to serve only the bowling alley itself. It received higher use after working hours and during lunch hours, on both Friday and Saturday.

All of the parking in and around the Main Post area is marked for fire hydrant spacings where required. Handicapped parking spaces are reserved and specially marked. The bowling alley parking lot has one-way traffic flow with a single entrance and a single exit. The Parade Grounds and Officers' Club parking lots have no circulation requirements, and virtually unlimited access along their perimeters. There are no parking meters on the Presidio, and no special parking restrictions in force on the base.

FIGURE 5
MAIN POST PARKING ANALYSIS
Friday July 19, 1991

DATE	TIME	Parked Vehicles				Percent Utilized			
		Parade Grounds	Officers' Club	Bowling Alley	Combined	Parade Grounds	Officers' Club	Bowling Alley	Combined
Fri. 7/19/91	7:00A	93	68	2	163	12.1%	24.1%	8.3%	15.2%
	8:00A	197	114	2	313	25.7%	40.4%	8.3%	29.1%
	9:00A	247	119	5	371	32.2%	42.2%	20.8%	34.5%
	10:00A	238	129	4	371	31.0%	45.7%	16.7%	34.5%
	11:00A	259	138	7	404	33.7%	48.9%	29.2%	37.6%
	12:00P	195	154	8	357	25.4%	54.6%	33.3%	33.2%
	1:00P	192	157	9	358	25.0%	55.7%	37.5%	33.3%
	2:00P	211	139	9	359	27.5%	49.3%	37.5%	33.4%
	3:00P	214	107	9	330	27.9%	37.9%	37.5%	30.7%
	4:00P	148	88	6	242	19.3%	31.2%	25.0%	22.5%
	5:00P	55	113	7	175	7.2%	40.1%	29.2%	16.3%
	6:00P	27	127	19	173	3.5%	45.0%	79.2%	16.1%
AVERAGES		173	121	7	301	23.0%	43.0%	30.0%	28.0%

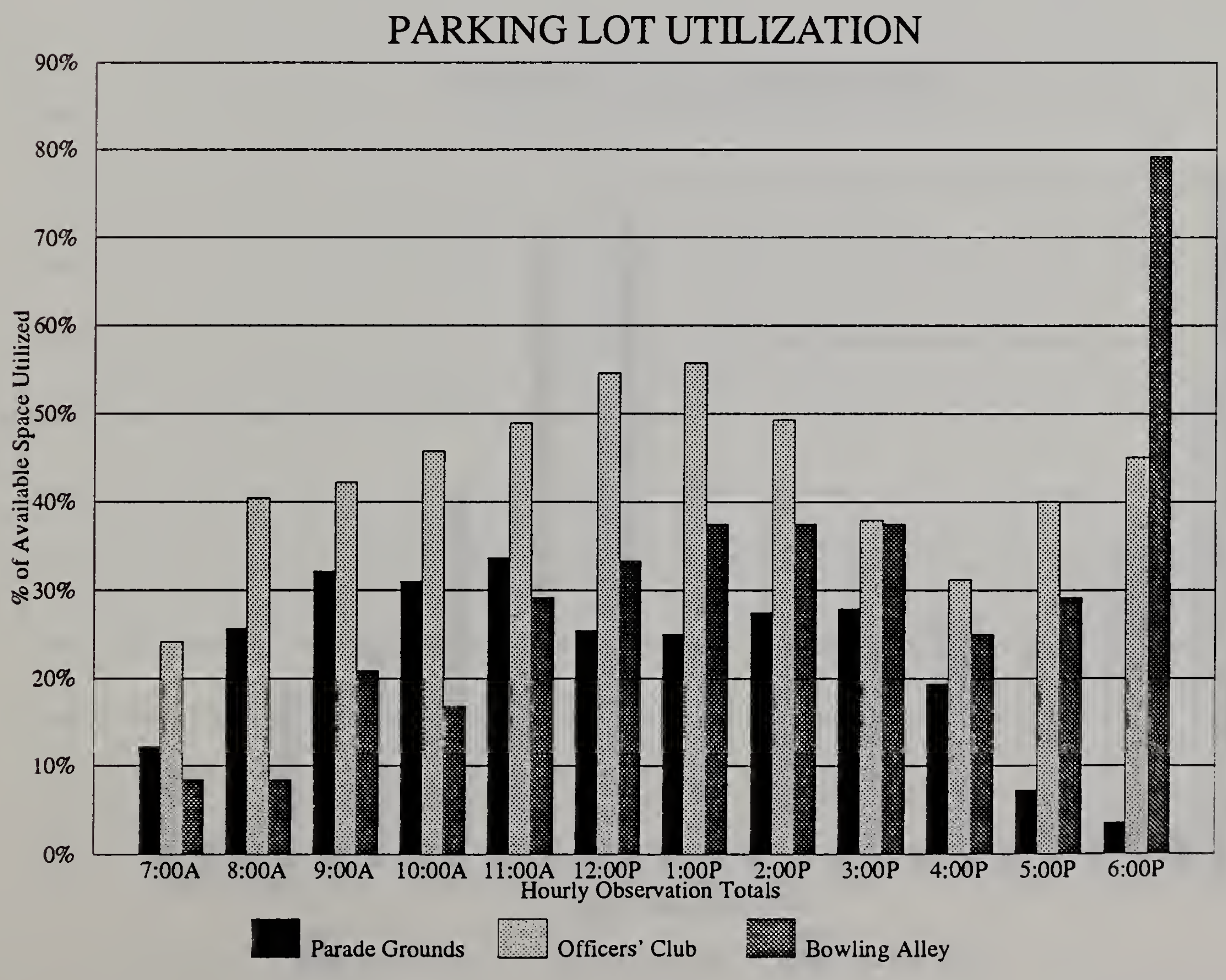
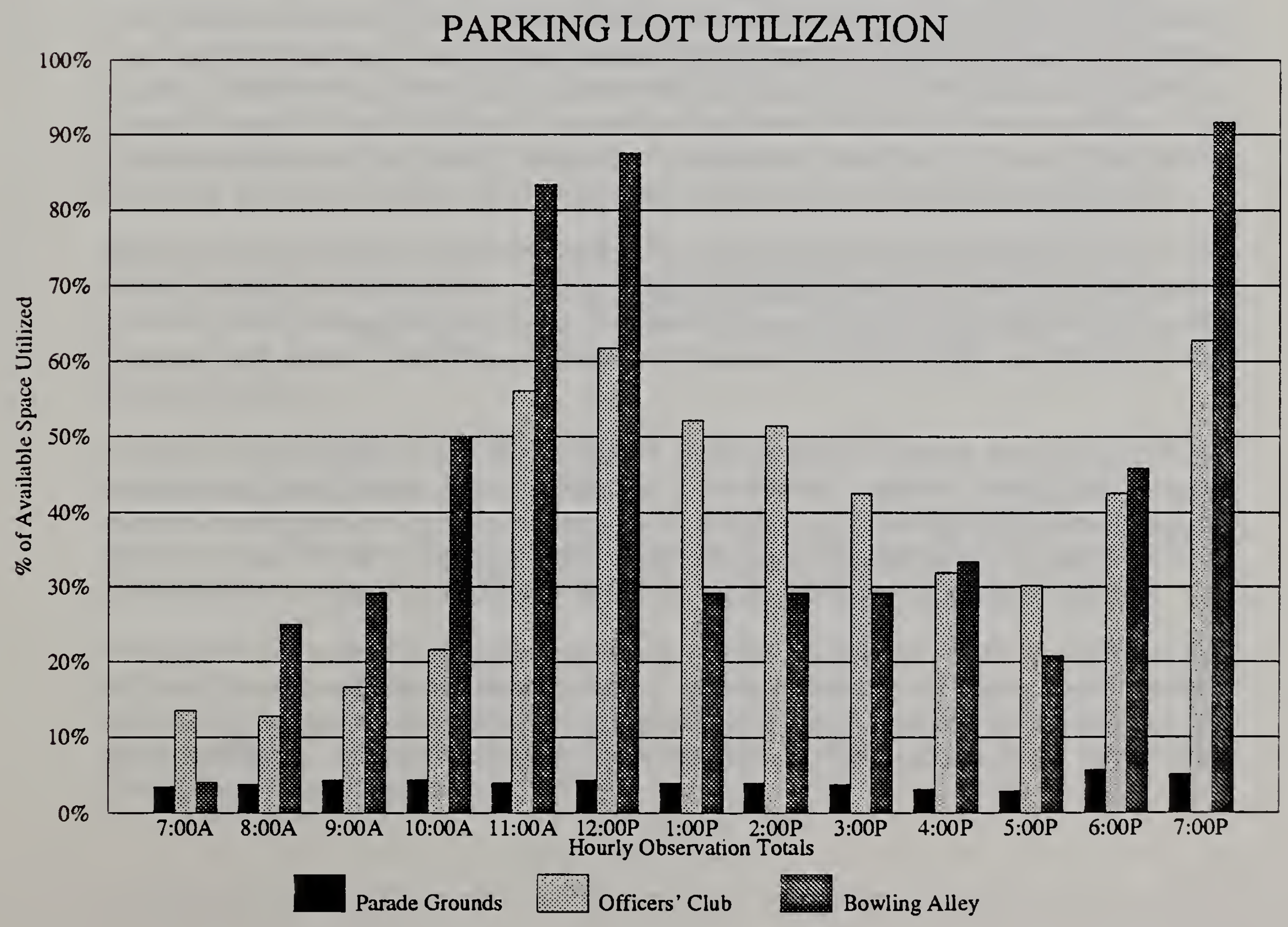


FIGURE 6

MAIN POST PARKING ANALYSIS

Saturday July 20, 1991

DATE	TIME	Parked Vehicles				Percent Utilized			
		Parade Grounds	Officers' Club	Bowling Alley	Combined	Parade Grounds	Officers' Club	Bowling Alley	Combined
Sat. 7/20/91	7:00A	27	38	1	66	3.5%	13.5%	4.2%	6.1%
	8:00A	30	36	6	72	3.9%	12.8%	25.0%	6.7%
	9:00A	34	47	7	88	4.4%	16.7%	29.2%	8.2%
	10:00A	34	61	12	107	4.4%	21.6%	50.0%	10.0%
	11:00A	31	158	20	209	4.0%	56.0%	83.3%	19.5%
	12:00P	34	174	21	229	4.4%	61.7%	87.5%	21.3%
	1:00P	31	147	7	185	4.0%	52.1%	29.2%	17.2%
	2:00P	31	145	7	183	4.0%	51.4%	29.2%	17.0%
	3:00P	30	120	7	157	3.9%	42.6%	29.2%	14.6%
	4:00P	25	90	8	123	3.3%	31.9%	33.3%	11.5%
	5:00P	23	85	5	113	3.0%	30.1%	20.8%	10.5%
	6:00P	44	120	11	175	5.7%	42.6%	45.8%	16.3%
	7:00P	40	177	22	239	5.2%	62.8%	91.7%	22.3%
AVERAGES		32	113	11	150	4.0%	40.0%	46.0%	14.0%



Letterman/Fort Point/Baker Beach

Three parking lots received continuous machine counts at their entrances and exits over the five day period from Wednesday July 17 through Sunday July 21. These lots also received periodic manual counts to ensure accurate results. Weather during the study was windy and mostly cloudy, with temperatures between 60°-70°F.

The Letterman Medical Center parking lot has entrances and exits at both its north and south ends. Directional counts were taken at both locations, to provide accumulation data for the lot. Manual counts taken periodically were used along with the machine count data, to ensure that vehicle accumulation was not skewed by machine counter error. The results of this study indicate that the Letterman Center generates peak demands for parking during normal weekday office hours from roughly 7:00 AM to 5:00 PM as was expected. Demand drops off at night and on weekends, also as expected. The parking lot has a capacity for about 680-690 vehicles, 75% of which is routinely used in peak hours. Letterman parking includes 162 spaces reserved for doctors, 73 staff spaces marked "Reserved" and at least five carpool spaces. Overflow parking is available near the Letterman Medical Institute of Research and across Lincoln Boulevard. Figure 7 illustrates the fluctuation in demand over the study period. Actual count data is provided in the Appendix to this report.

The Fort Point parking lot is served by a single access via Long Avenue. Directional counts were taken on this road, and calibrated with manual observations. The access also serves the Presidio Resource Center, so its parking demand was originally included in the study. The Fort Point Parking Accumulation data shown in Figure 8 is based on the original traffic count on Long Avenue. Although the counter data is suspected to be inaccurate, the parking lot was manually inventoried four times per day to provide a check on the counter data. The manual counts were then used to adjust the counter data, resulting in a reasonable pattern of use for the area. Detailed count information is provided in the Appendix to this report.

Because the automated counter information for Long Avenue is suspected to be inaccurate, the ADT values presented in this report are based on data from the Park Service's permanent traffic counter. Located just beyond the Presidio Resource Center, this counter records traffic entering and exiting Fort Point. It does not however, include traffic generated by the Resource Center.

Parking for Baker Beach and the Presidio's water treatment plant is served by a single access via Gibson Road. The combination of continuous machine counts and periodic manual inventories was used on this area as on the others. The analysis indicates a regular pattern of use, shown in Figure 9, which appears to be appropriate for its relationship to recreational activities. Detailed count information is provided in the report's Appendix.

Unfortunately, the study period did not include a warm, sunny day, when recreational use of Baker Beach is expected to be at its highest. Military police on the Presidio have indicated that parking in this lot has overflowed its capacity in the past on warm, sunny days. Under these conditions, vehicles have been observed parking along Gibson Road and Bowley Street; and on graveled portions of Howard Road.

LETTERMAN PARKING ACCUMULATION

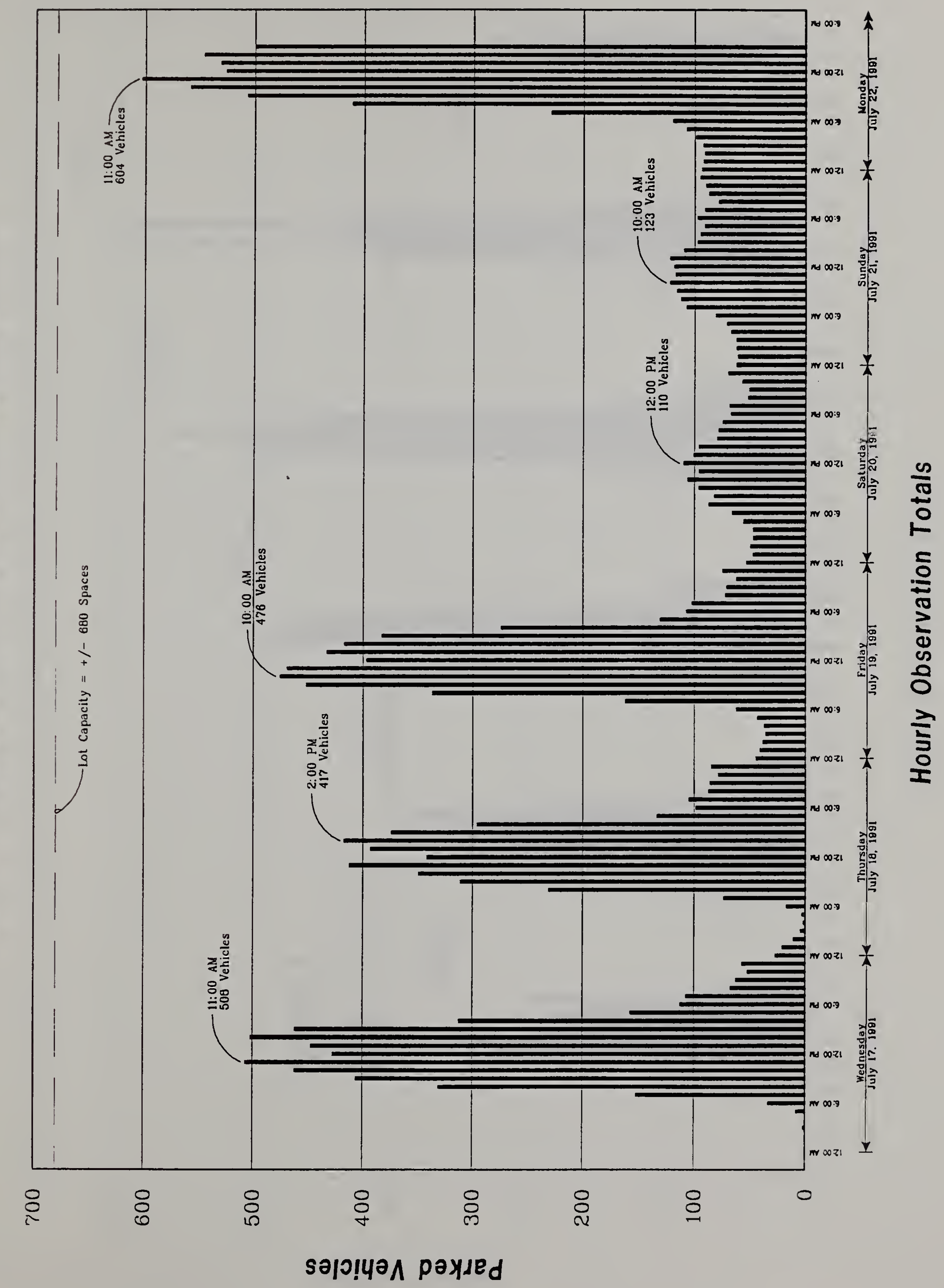


Figure 7

FORT POINT PARKING ACCUMULATION

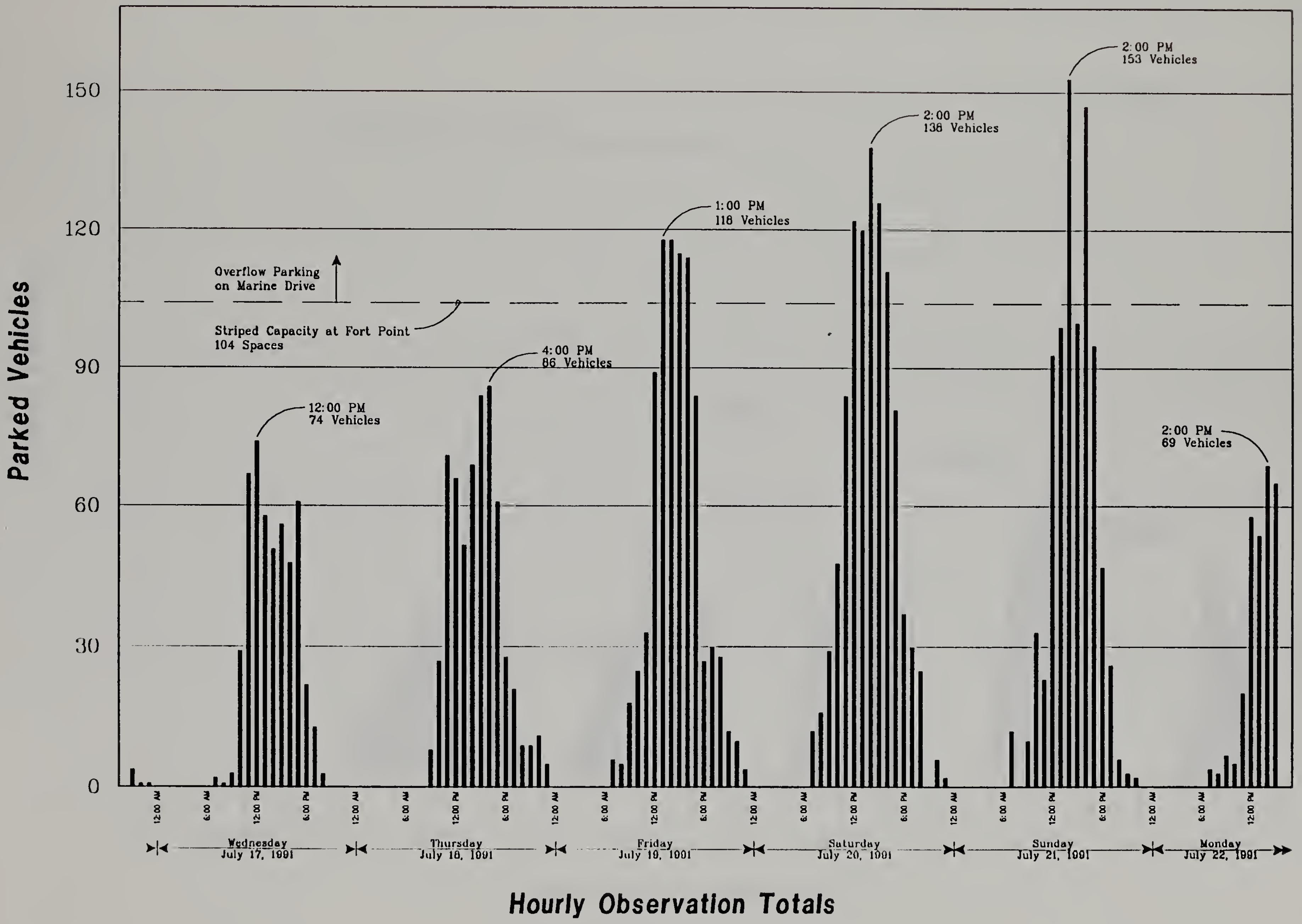
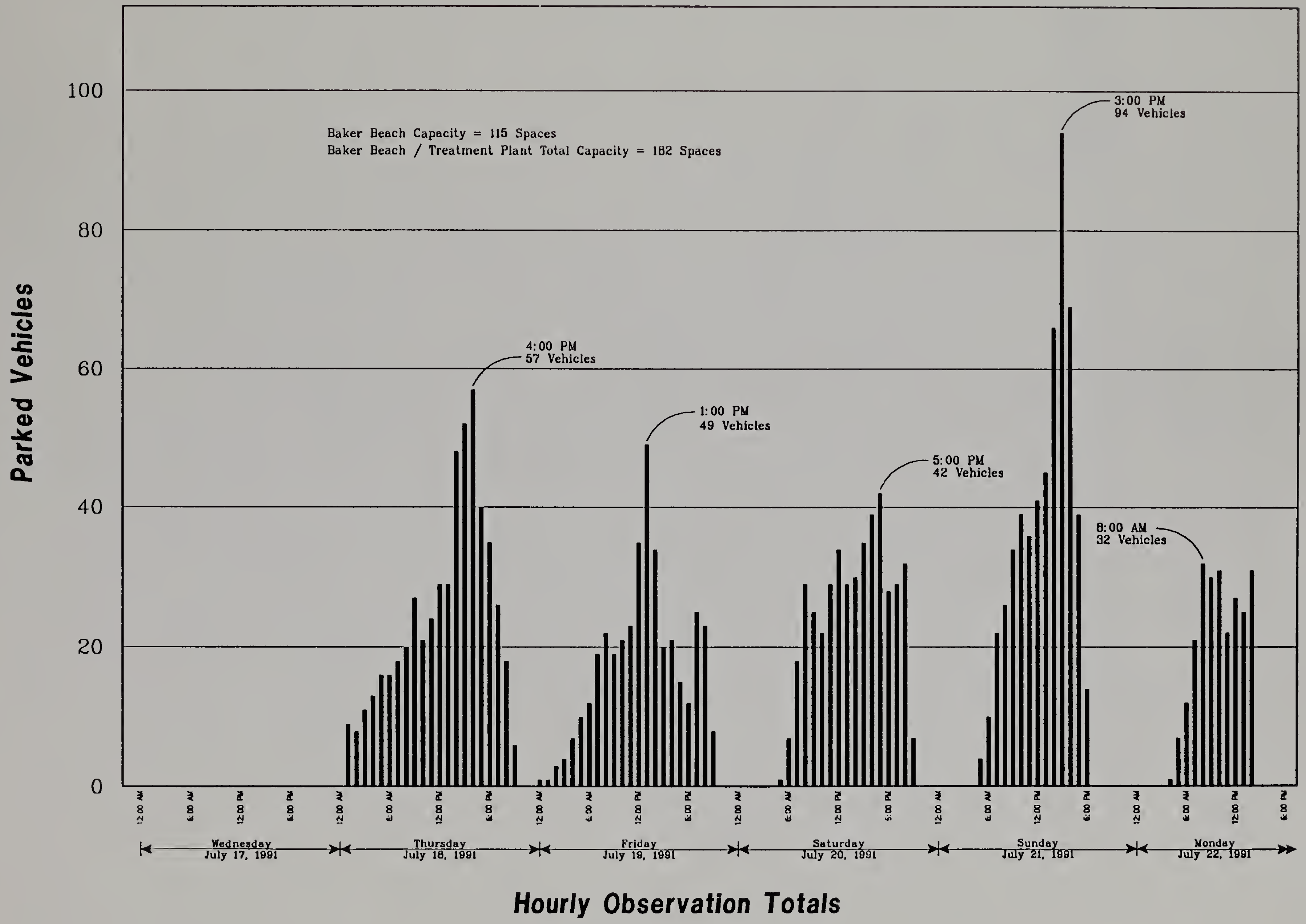


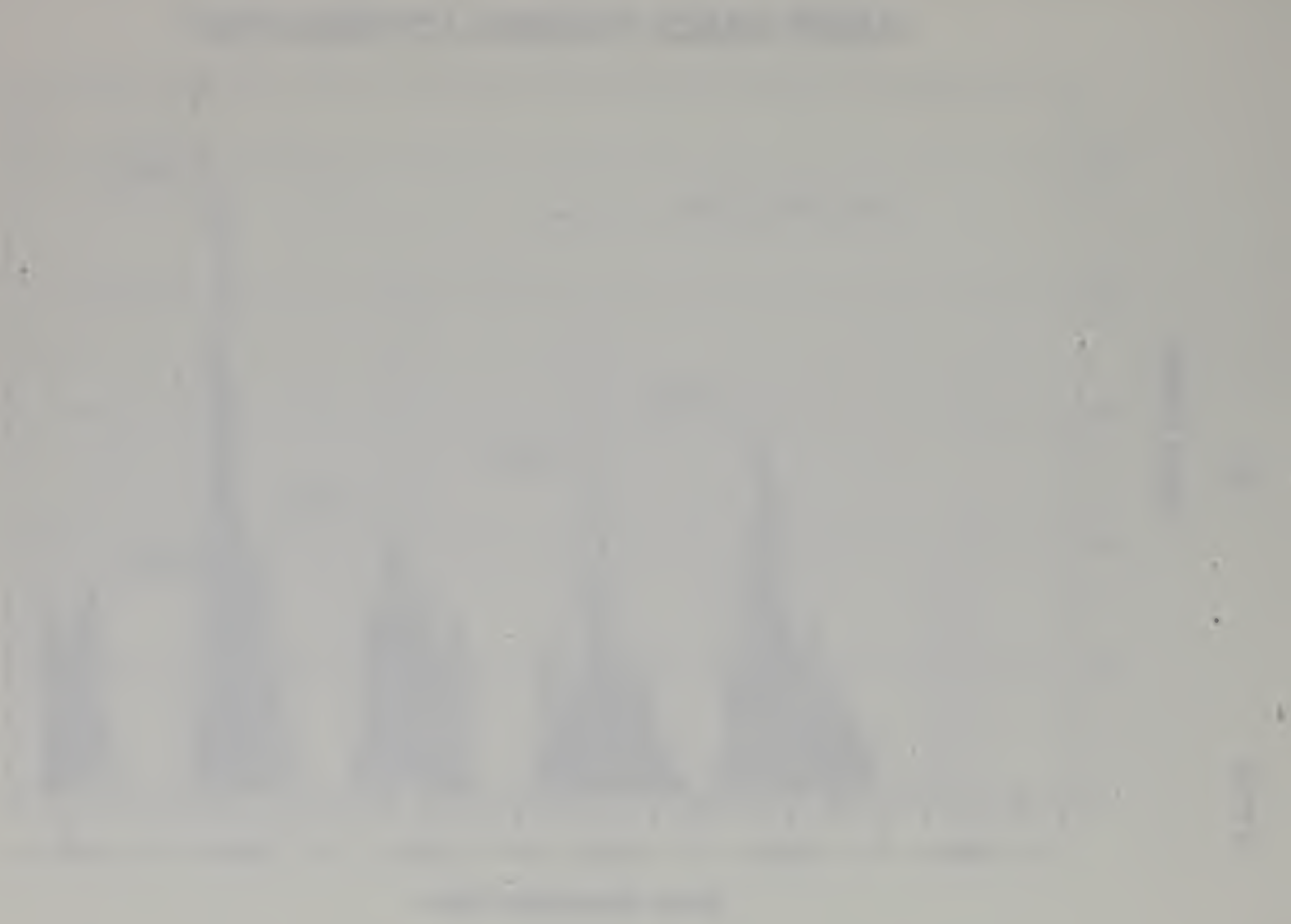
Figure 8

BAKER BEACH PARKING ACCUMULATION



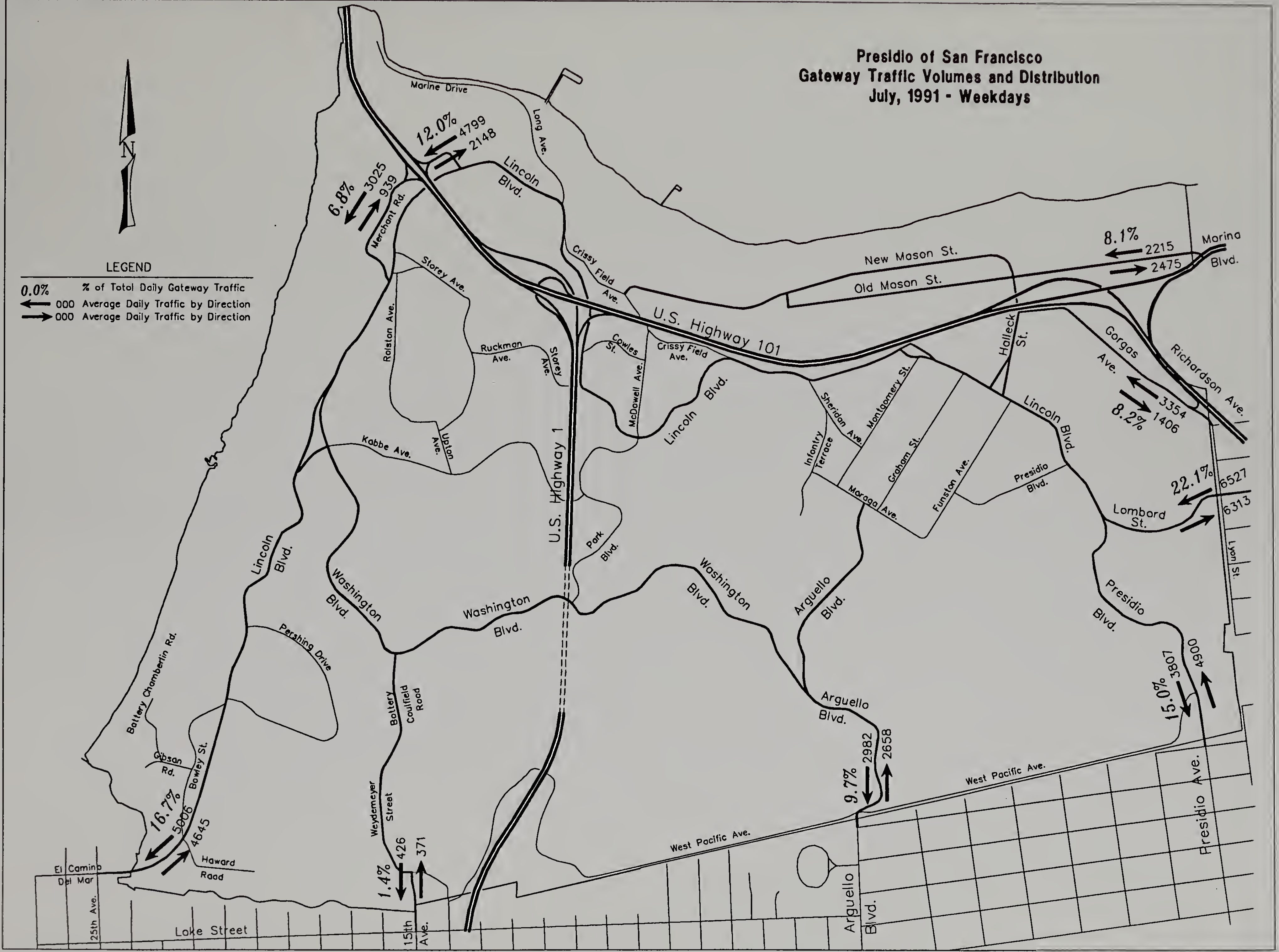
Baker Beach Capacity = 115 Spaces
Baker Beach / Treatment Plant Total Capacity = 182 Spaces

Figure 9

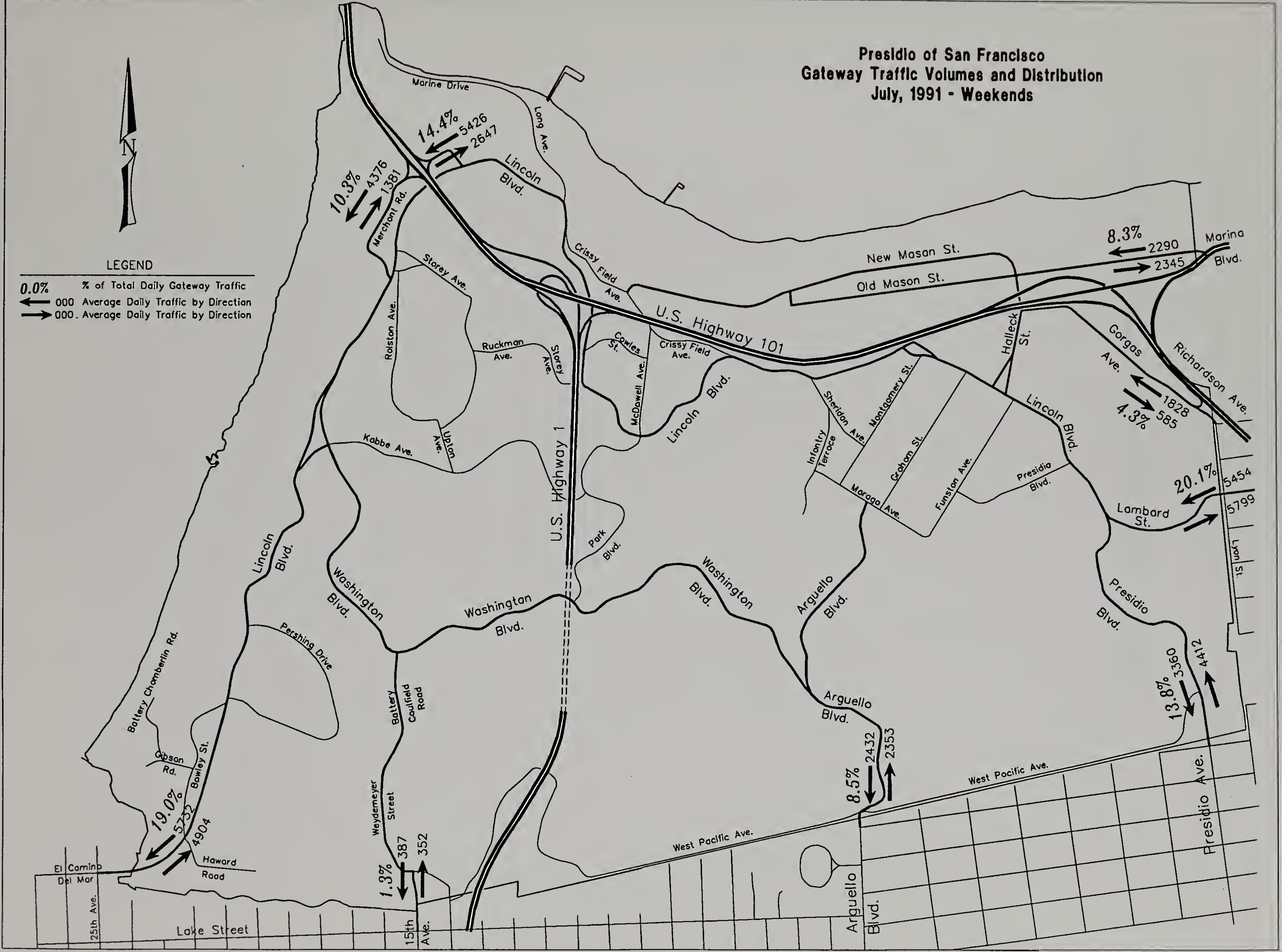


Appendix

Presidio of San Francisco
Gateway Traffic Volumes and Distribution
July, 1991 - Weekdays



Presidio of San Francisco
Gateway Traffic Volumes and Distribution
July, 1991 - Weekends

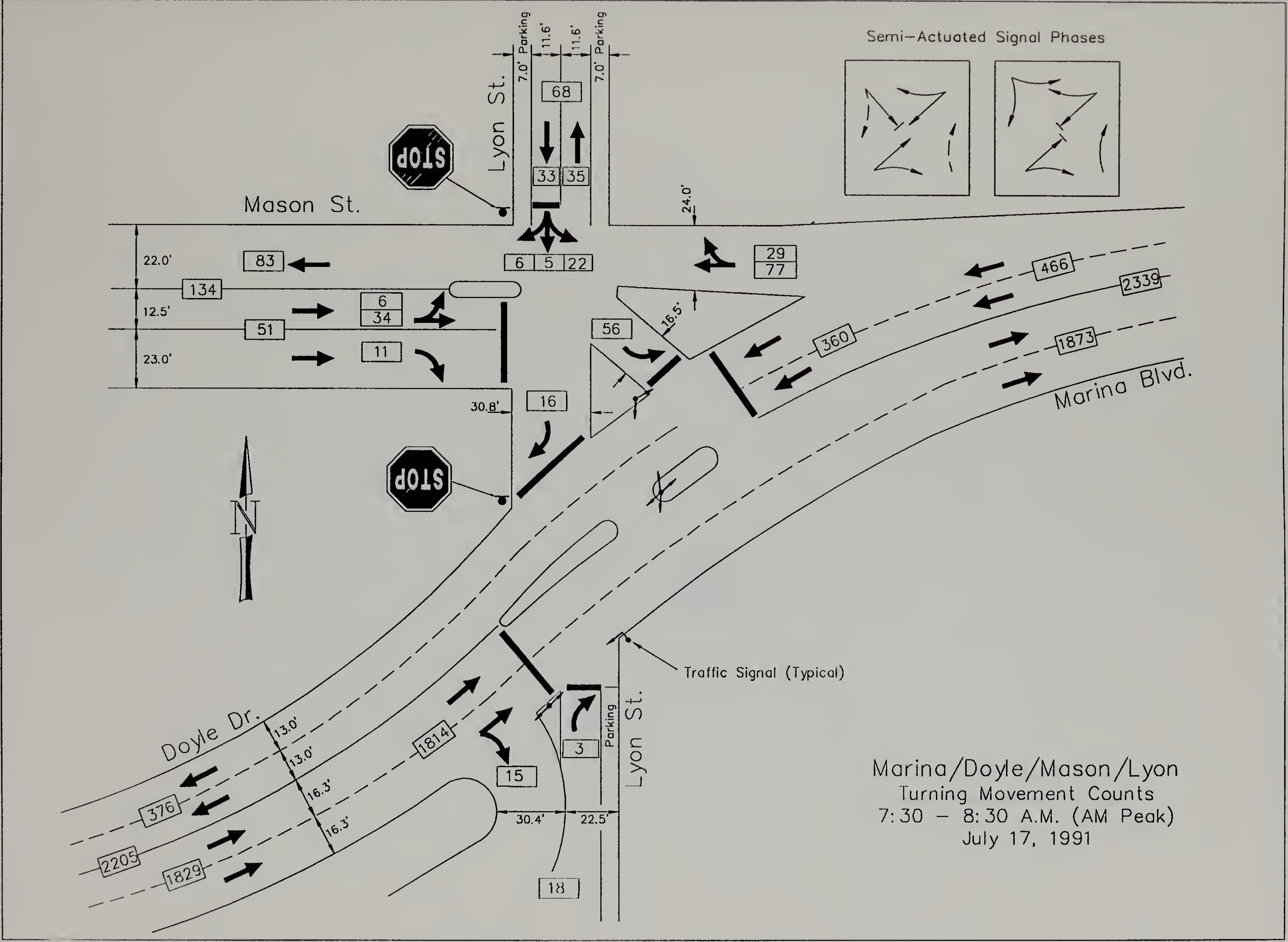


Presidio Machine Count Summary (Unadjusted Data)

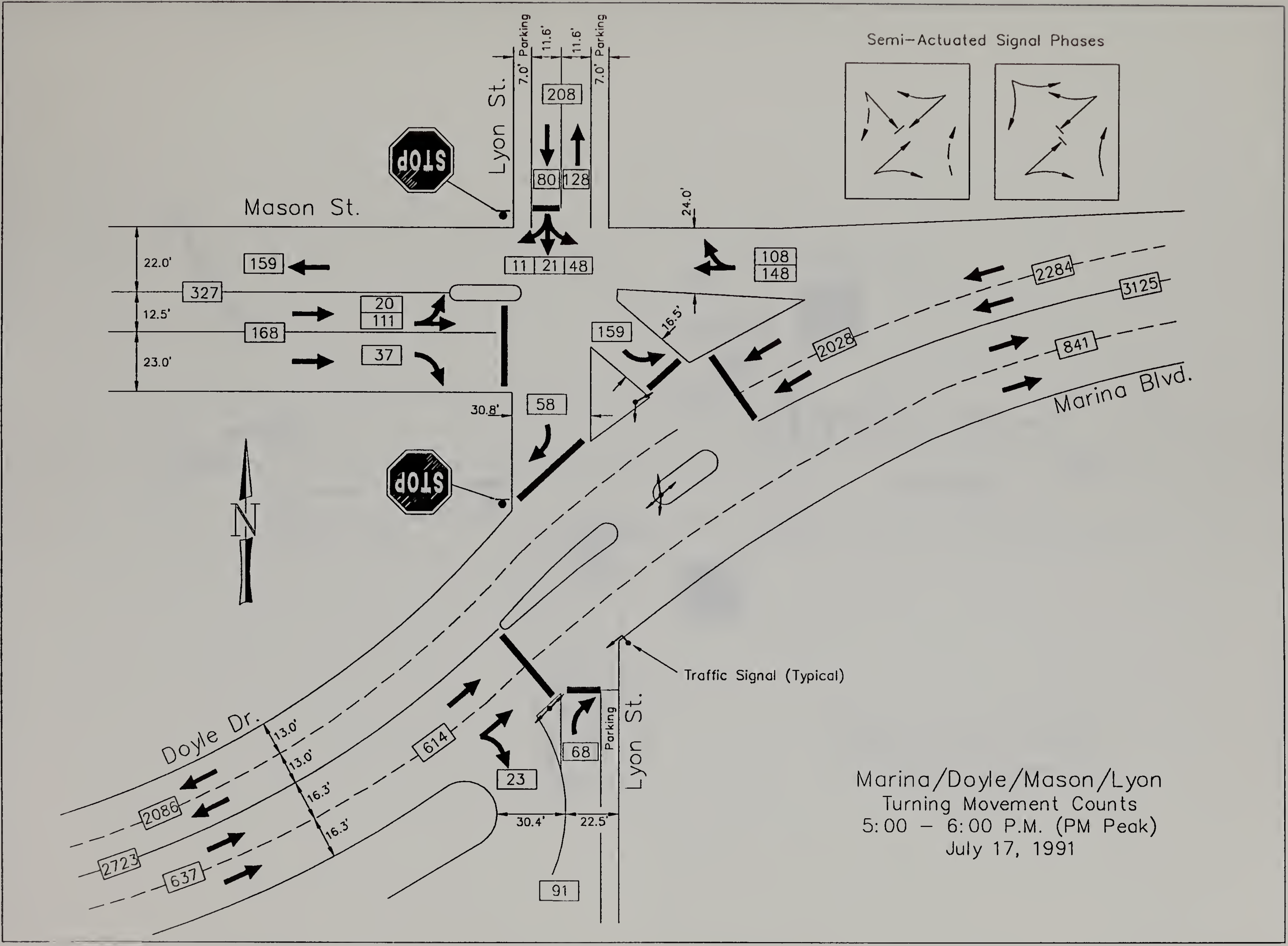
PRESIDIO MACHINE COUNT SUMMARY (Unadjusted Data)

		1991										1992						
TASK No.	COUNTER LOCATION / TRAFFIC DIRECTION	TUE. JULY 16	WED. JULY 17	THU. JULY 18	FRI. JULY 19	SAT. JULY 20	SUN. JULY 21	TUE. JULY 23	WED. JULY 24	TUE. JULY 30	WED. JULY 31	SAT. JAN. 25	SUN. JAN. 26	MON. JAN. 27	TUES. JAN. 28	WED. JAN. 29	THURS. JAN. 30	FRI. JAN. 31
1-1	Mason St. - West of Lyon St. (Eastbound)		2365	2456	2604	2281	2408											
1-1	Mason St. - West of Lyon St. (Westbound)		2142	2185	2317	2112	2468											
1-2	Gorgas Ave. - NW of Truby St. (Westbound)		3773	3822	3896	2613	2147											
1-2	Gorgas Ave. - NW of Truby St. (Eastbound)		1023	1115	1274	651	624											
1-3	Truby St. - SW of Gorgas Ave. (Northbound)		1183	1137	1071	333	279											
1-3	Truby St. - SW of Gorgas Ave. (Southbound)		1073	1126	1107	339	277											
1-4	Lombard St. - West of Lyon St. (Eastbound)		9900	10014	11199	10646	10118											
1-4	Lombard St. - West of Lyon St. (Westbound)		3299	3094	2673	2509	2128											
1-4a	Lombard St. - West of Lyon St. (Eastbound)											5738	4618	4893	5488	5534	5422	6106
1-4a	Lombard St. - West of Lyon St. (Westbound)											5284	4455	5197	5705	5770	5656	6178
1-5	Presidio Blvd. - North of Pacific Ave. (Northbound)	4887	4866	4765	5083	4540	4283											
1-5	Presidio Blvd. - North of Pacific Ave. (Southbound)	3846	3712	3788	3880	3379	3341											
1-5a	Presidio Blvd. - North of Pacific Ave. (Northbound)											3811	3051	3512	3970	3998	3990	4236
1-5a	Presidio Blvd. - North of Pacific Ave. (Southbound)											3816	3225	3649	4135	4134	4048	4312
1-6	Arguello Blvd. - South of Jackson St. (Northbound)	2925	3145	3204	3380	2830	2771											
1-6	Arguello Blvd. - South of Jackson St. (Southbound)	4044	3820	3792	4040	3307	3093											
1-7	15th Ave. - North of Lake St. (Northbound)	385	340	349	410	325	379											
1-7	15th Ave. - North of Lake St. (Southbound)	389	406	441	468	379	394											
1-8	Lincoln Blvd. - SW of Howard Rd. (Northbound)	6885	6269	6413	8630	8772	10687											
1-8	Lincoln Blvd. - SW of Howard Rd. (Southbound)	4192	3500	3420	3173	3377	4119											
1-8a	Lincoln Blvd. - SW of Howard Rd. (Northbound)											4685	4073	3636	3696	4148	4000	4547
1-8a	Lincoln Blvd. - SW of Howard Rd. (Southbound)											4979	5256	3989	4263	4632	4367	4618
1-9	Merchant Rd. - South of Battery Cranston (Northbound)		867	947	1002	1082	1680											
1-9	Merchant Rd. - South of Battery Cranston (Southbound)		2886	3032	3156	3869	4883											
1-10	G.G. Bridge Viewing Entr. W of Lincoln Road (Northbound)		4357	4613	5428	5296	5556											
1-10	G G. Bridge Viewing Entr. W of Lincoln Road (Southbound)		1896	2157	2390	2711	2582											
3-1	Letterman South (Dewitt Rd.) (Northbound)		1326	1368	1326	457	384											
3-1	Letterman South (Dewitt Rd.) (Southbound)		1291	1384	1345	462	393											
3-2	Baker Beach on Gibson Rd. (Eastbound)			544	660	886	1063											
3-2	Baker Beach on Gibson Rd. (Westbound)			543	659	887	1064											
3-3	Fort Point on Long Ave. (Northbound)		1192	1304	1436	2045	2368											
3-3	Fort Point on Long Ave. (Southbound)		500	538	621	920	1026											
3-3a	Fort Point at Ranger Office (Northbound)	728	1586	318	358	363	329	359	690									
3-3a	Fort Point at Ranger Office (Southbound)	728	1586	318	358	363	329	359	690									
5-1	Mason St. - North of Old Mason St. (Eastbound)							1179	1084									
5-1	Mason St. - North of Old Mason St. (Westbound)							1693	1587									
5-2	Old Mason St. - West of Halleck St. (Eastbound)							2358	2213									
5-2	Old Mason St. - West of Halleck St. (Westbound)							1819	1728									
5-3	Halleck St. - South of Old Mason St. (Northbound)							3130	3059									
5-3	Halleck St. - South of Old Mason St. (Southbound)							3174	3106									
5-4	Lombard St. - East of Lincoln Blvd. (Eastbound)							6737	6845									
5-4	Lombard St. - East of Lincoln Blvd. (Westbound)							4598	4583									
5-5	Lincoln Blvd. - North of Lombard St. (Northbound)							5092	4897									
5-5	Lincoln Blvd. - North of Lombard St. (Southbound)							3955	4034									
5-6	Presidio Blvd. - South of Lombard St. (Northbound)							6256	6007									
5-6	Presidio Blvd. - South of Lombard St. (Southbound)							3947	4060									
5-7	Lincoln Blvd. - North of Viewing Area Entr. (Eastbound)							2099	2180									
5-7	Lincoln Blvd. - North of Viewing Area Entr. (Westbound)							4478	4486									
5-8	Lincoln Blvd. at US101 Underpass (Northbound)							3976	4098									
5-8	Lincoln Blvd. at US101 Underpass (Southbound)							2719	2804									
5-8a	Lincoln Blvd. at US101 Underpass (Northbound)											4147	3484	3218	3461	3647	3580	3944
5-8a	Lincoln Blvd. at US101 Underpass (Southbound)											2475	2156	2010	2267	2418	2374	2448
5-9	Lincoln Blvd. - South of Merchant Rd. (Northbound)									4416	4676							
5-9	Lincoln Blvd. - South of Merchant Rd. (Southbound)									4587	4787							
5-10	Arguello Blvd - North of Washington Blvd. (Northbound)							1714	1752									
5-10	Arguello Blvd. - North of Washington Blvd. (Southbound)							2152	2295									
5-11	Washington Blvd - NW of Arguello Blvd. (Northbound)									954	977							
5-11	Washington Blvd. - NW of Arguello Blvd. (Southbound)									329	368							
5-12	Crissy Field Ave. West of Mason (Westbound)							4501	4162									
5-13	Crissy Field Ave SE of Mason (Eastbound)							854	795									
5-13	Crissy Field Ave SE of Mason (Westbound)							1986	1917									

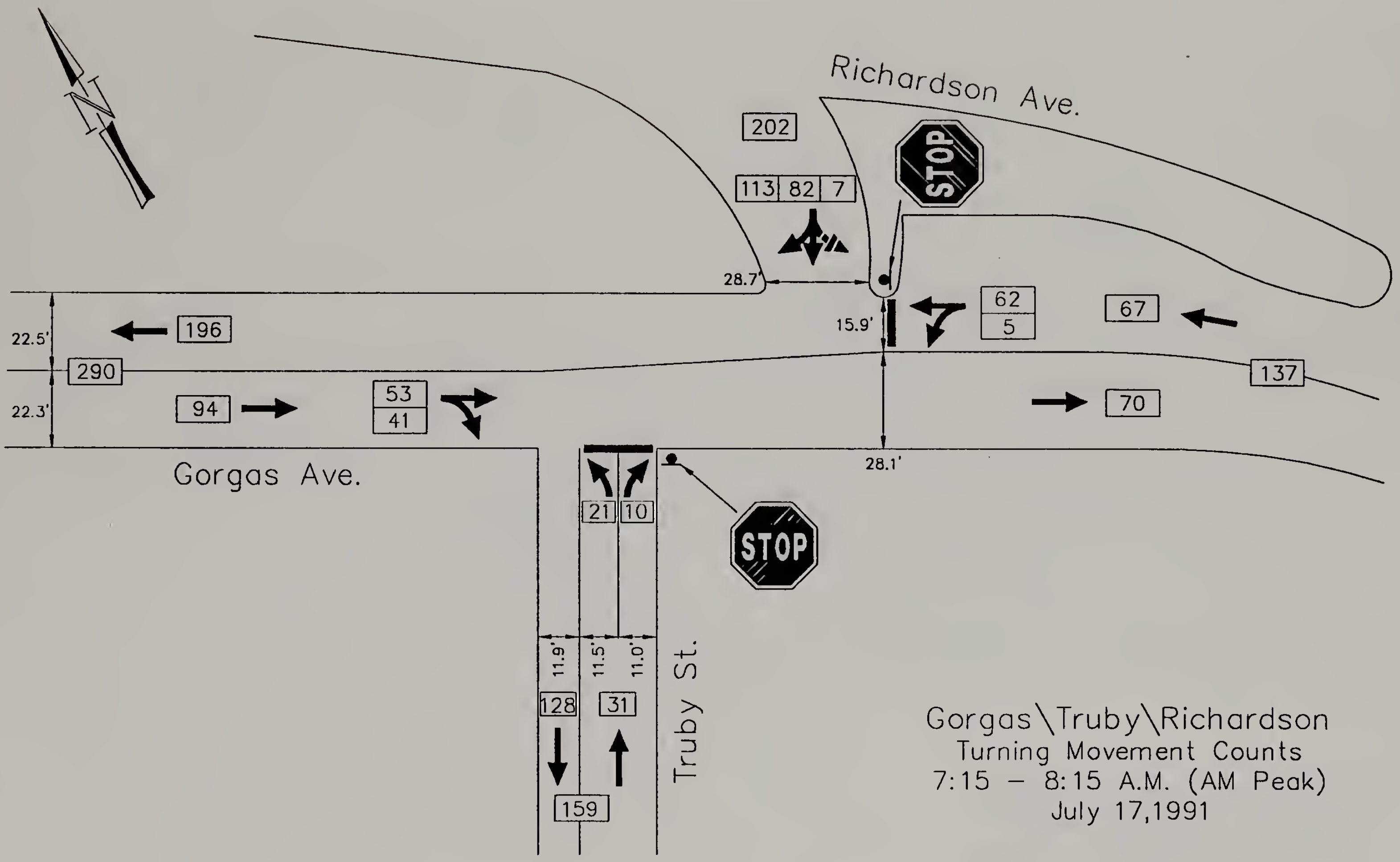
Intersection Turning Movement Count Diagrams



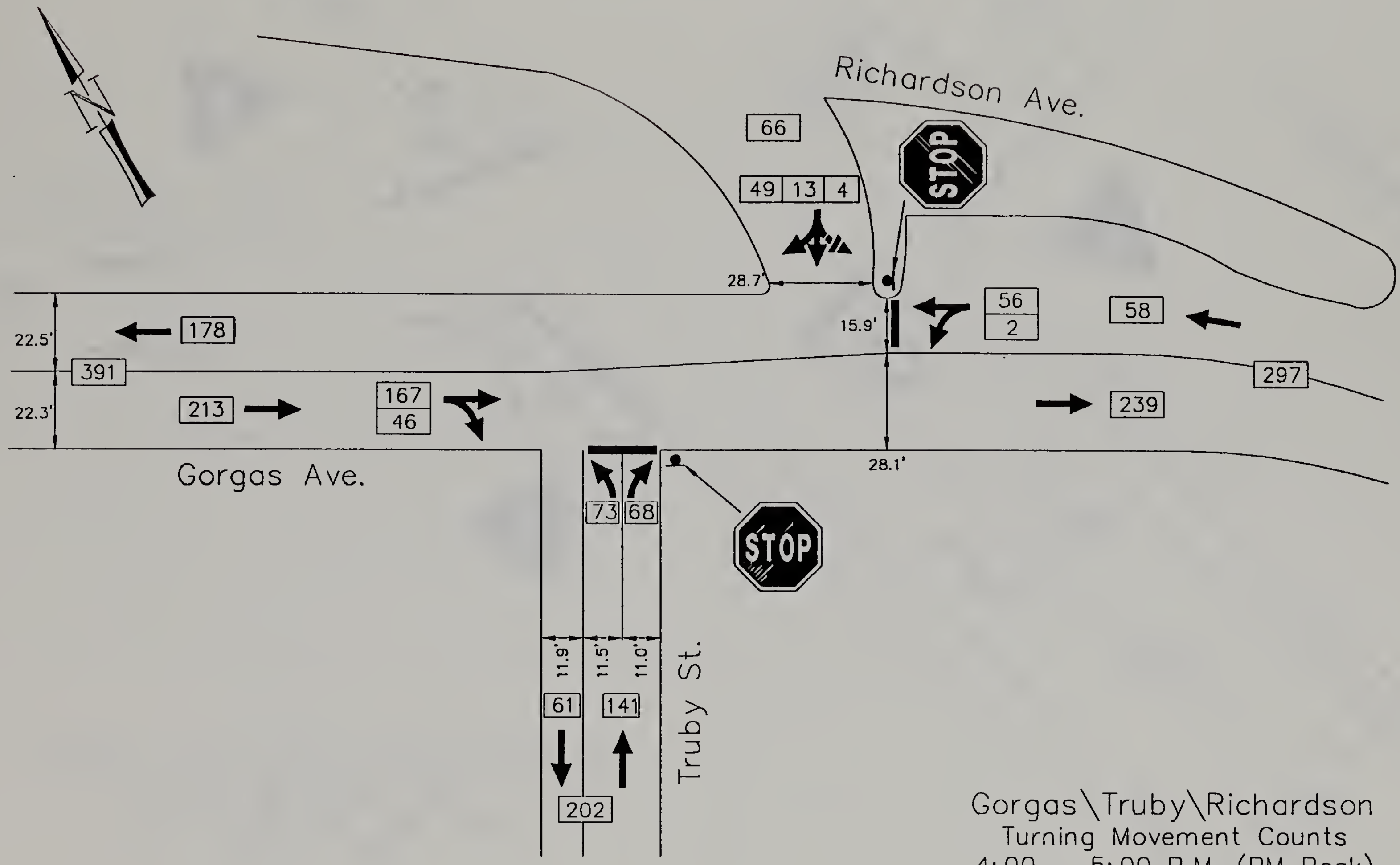
Marina/Doyle/Mason/Lyon
Turning Movement Counts
7:30 – 8:30 A.M. (AM Peak)
July 17, 1991



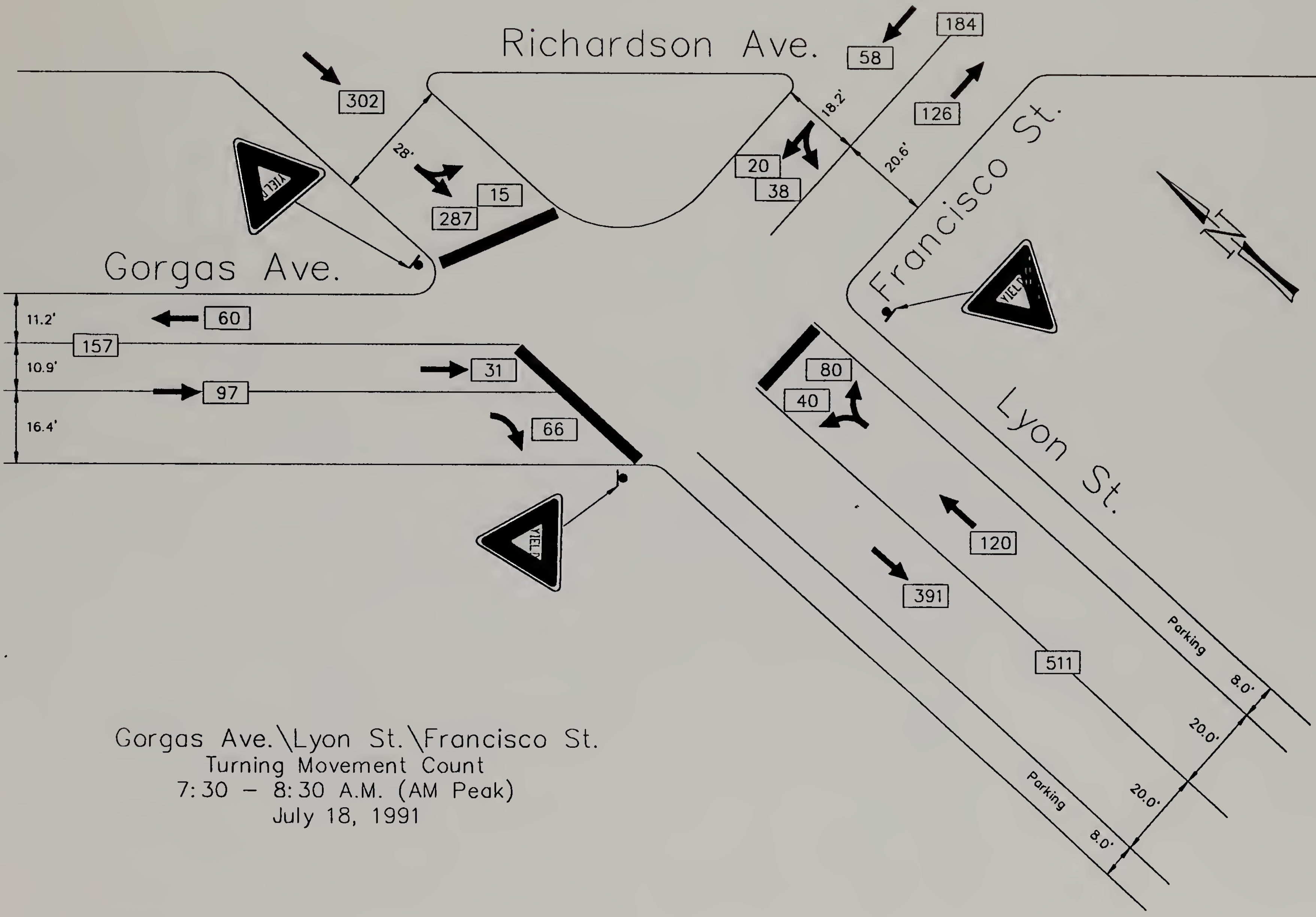
Marina/Doyle/Mason/Lyon
Turning Movement Counts
5:00 – 6:00 P.M. (PM Peak)
July 17, 1991



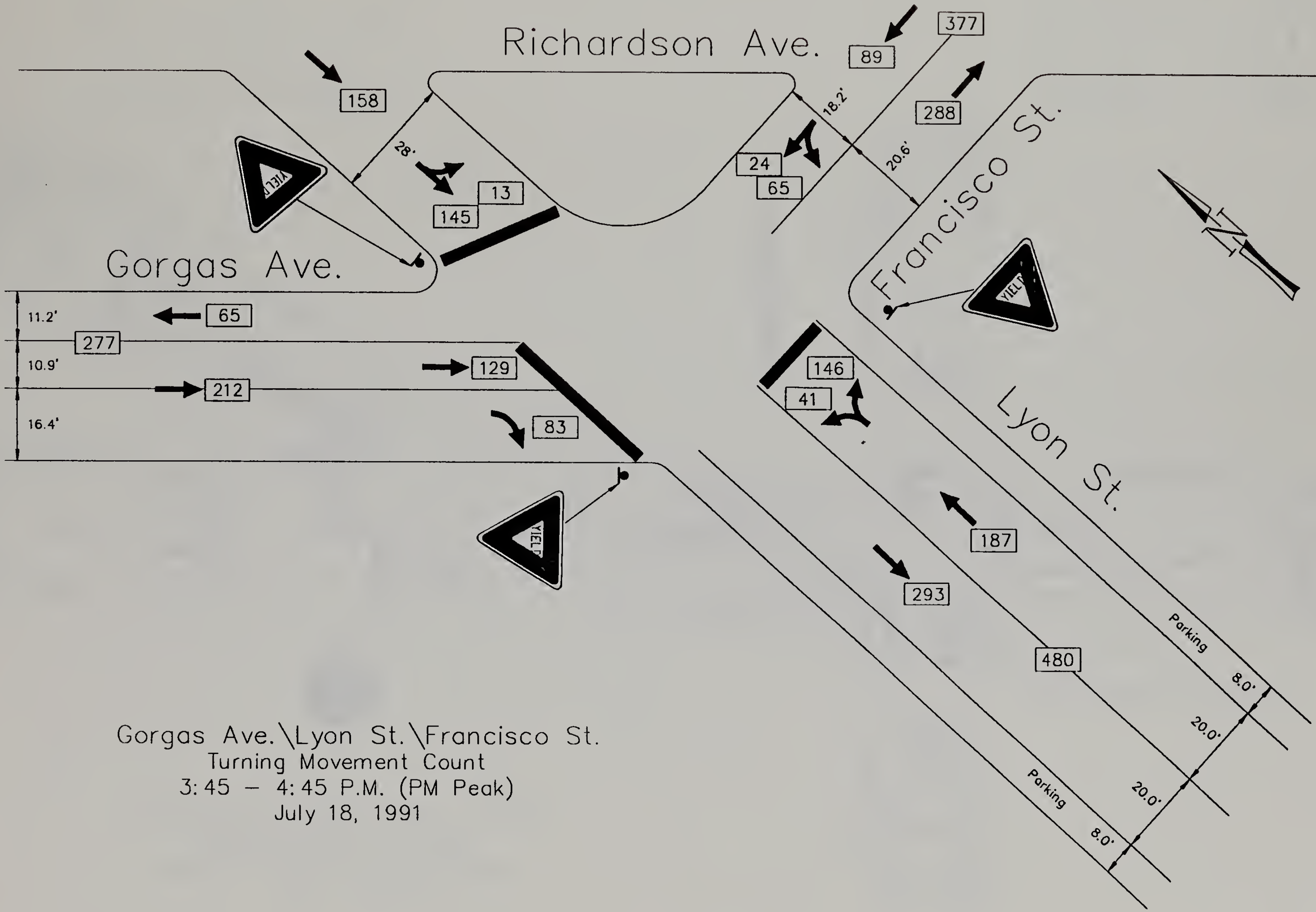
Gorgas\Truby\Richardson
Turning Movement Counts
7:15 – 8:15 A.M. (AM Peak)
July 17,1991



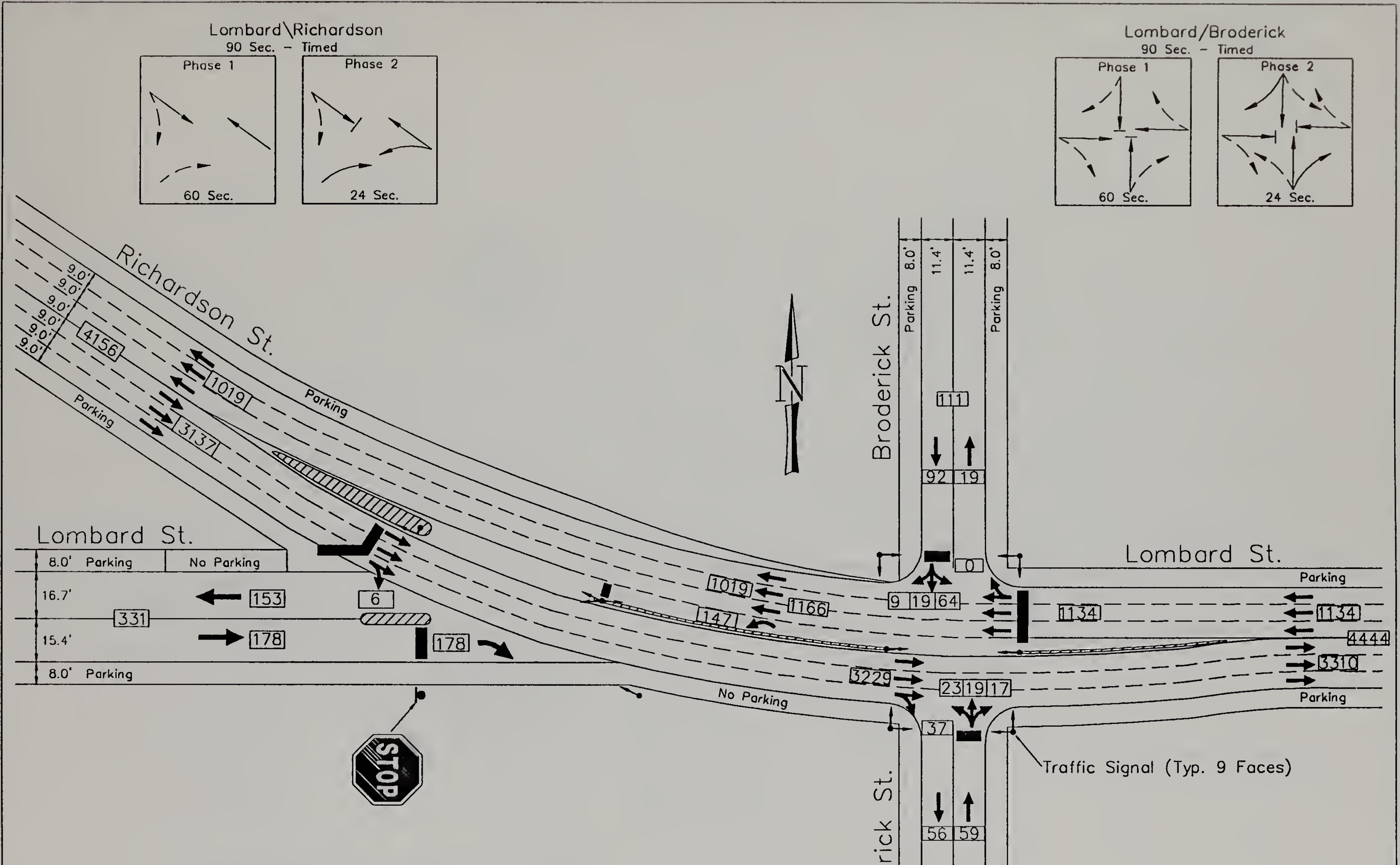
Gorgas\Truby\Richardson
Turning Movement Counts
4:00 – 5:00 P.M. (PM Peak)
July 17,1991



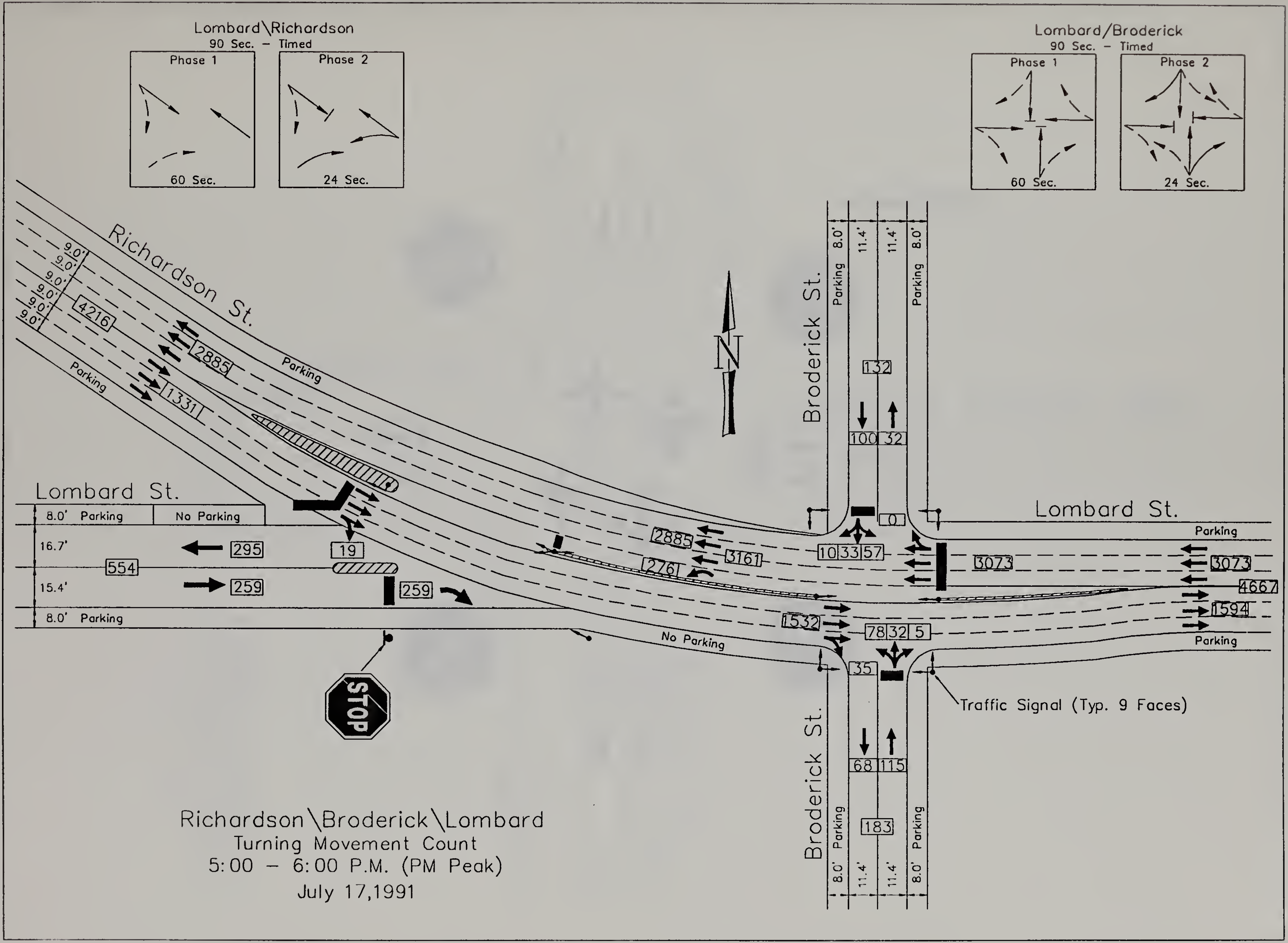
Gorgas Ave.\Lyon St.\Francisco St.
Turning Movement Count
7:30 – 8:30 A.M. (AM Peak)
July 18, 1991



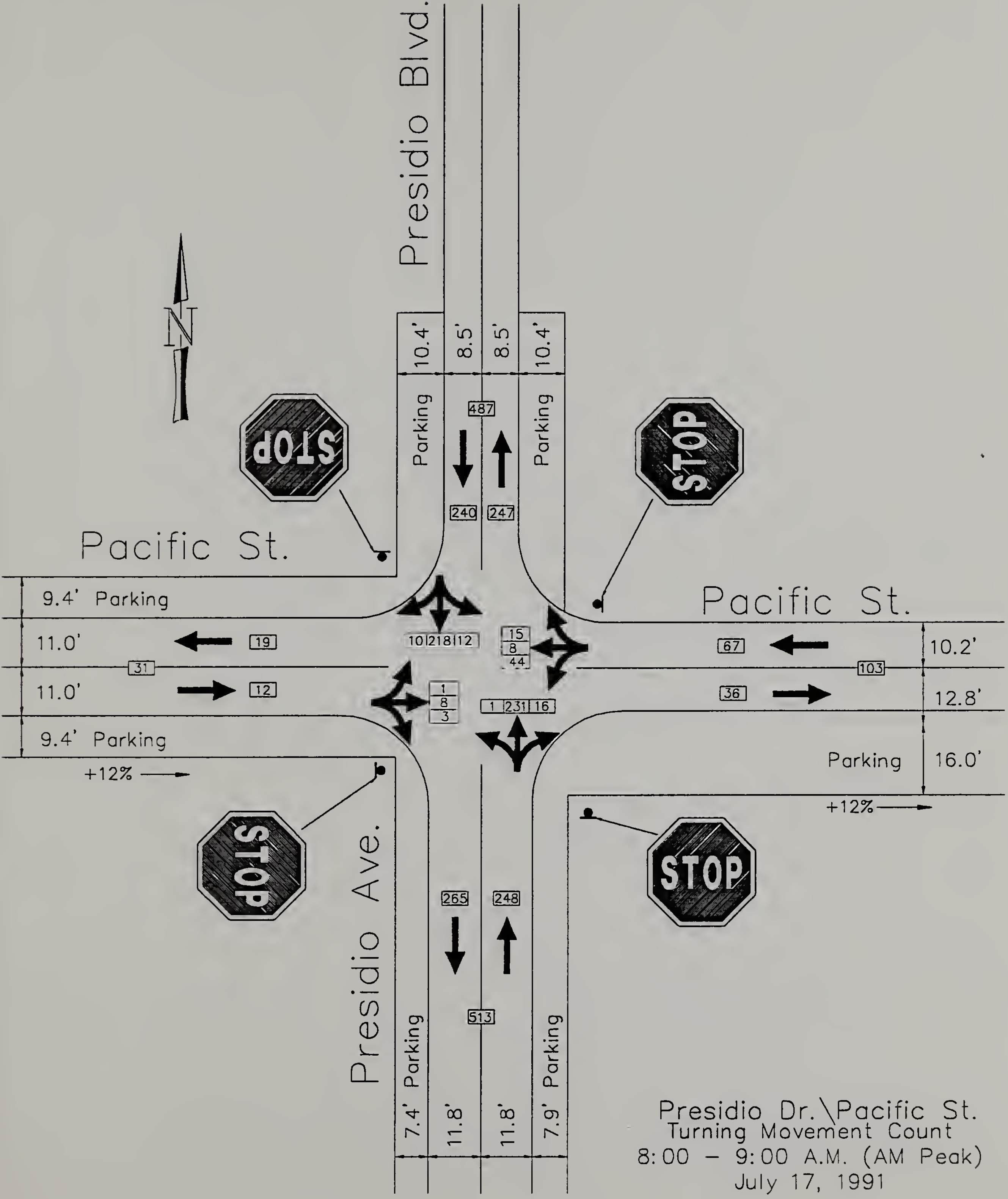
Gorgas Ave.\Lyon St.\Francisco St.
Turning Movement Count
3:45 – 4:45 P.M. (PM Peak)
July 18, 1991



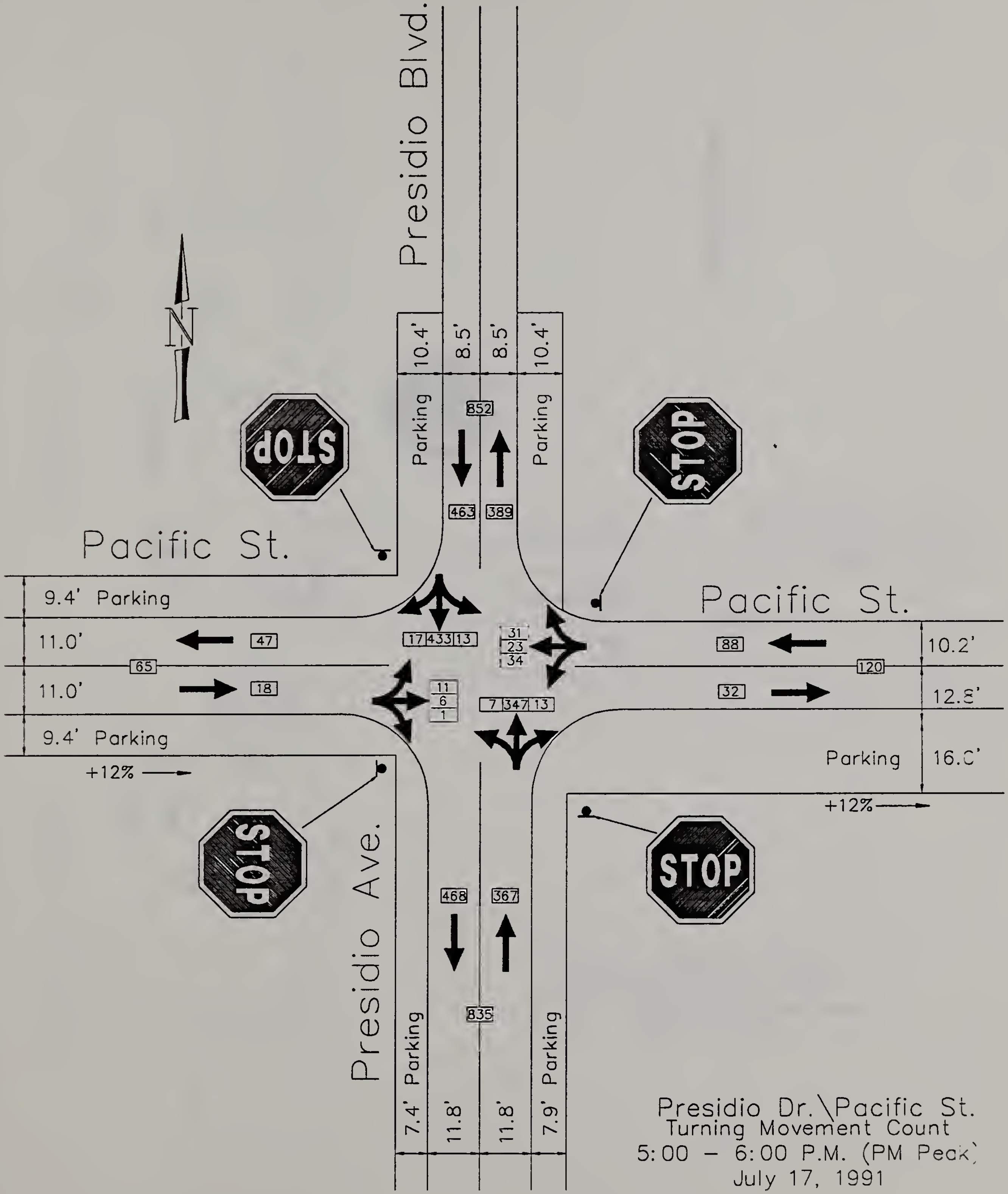
Richardson\Broderick\Lombard
Turning Movement Count
8:00 – 9:00 A.M. (AM Peak)
July 17,1991



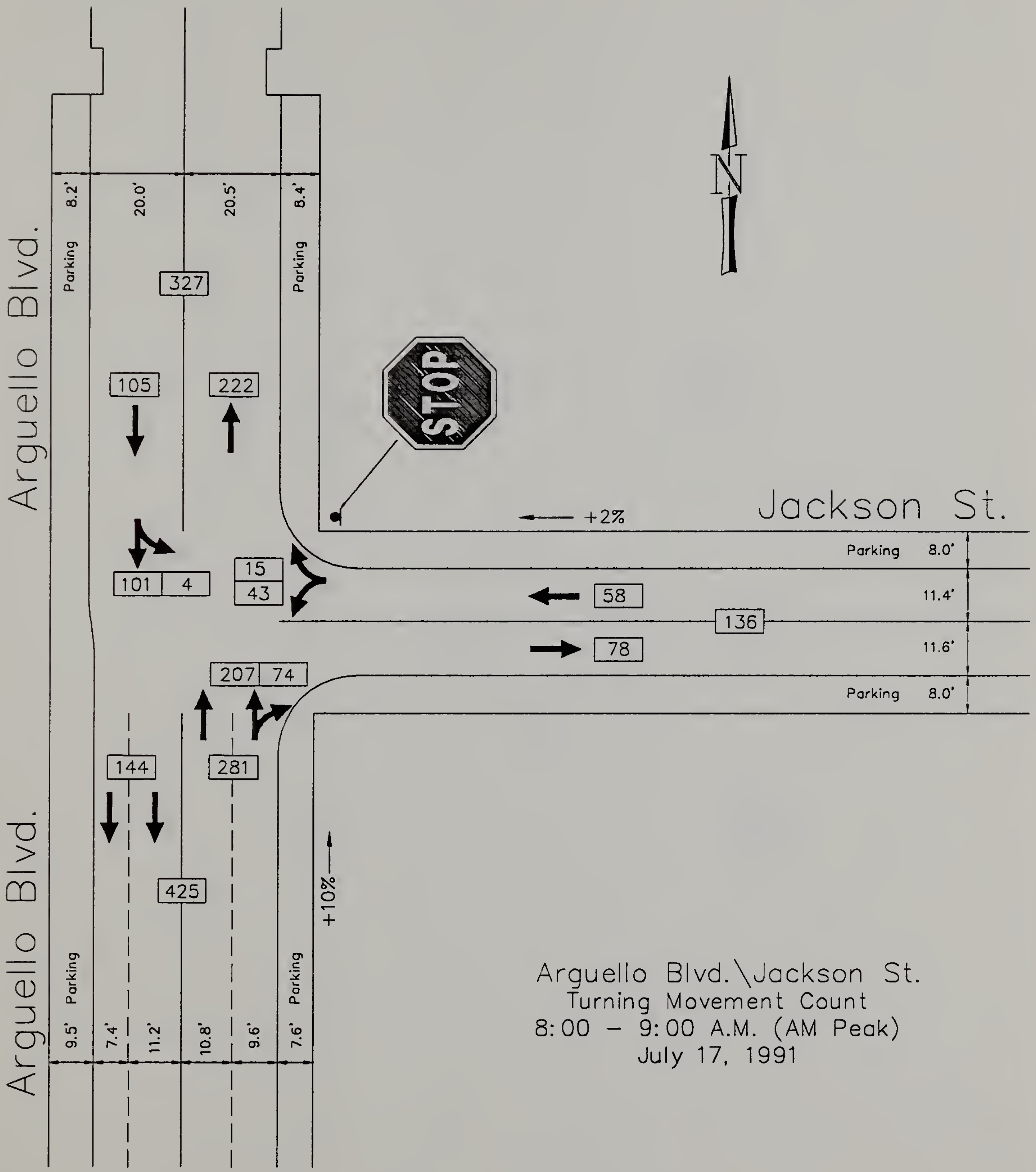
Richardson\Broderick\Lombard
Turning Movement Count
5:00 – 6:00 P.M. (PM Peak)
July 17,1991



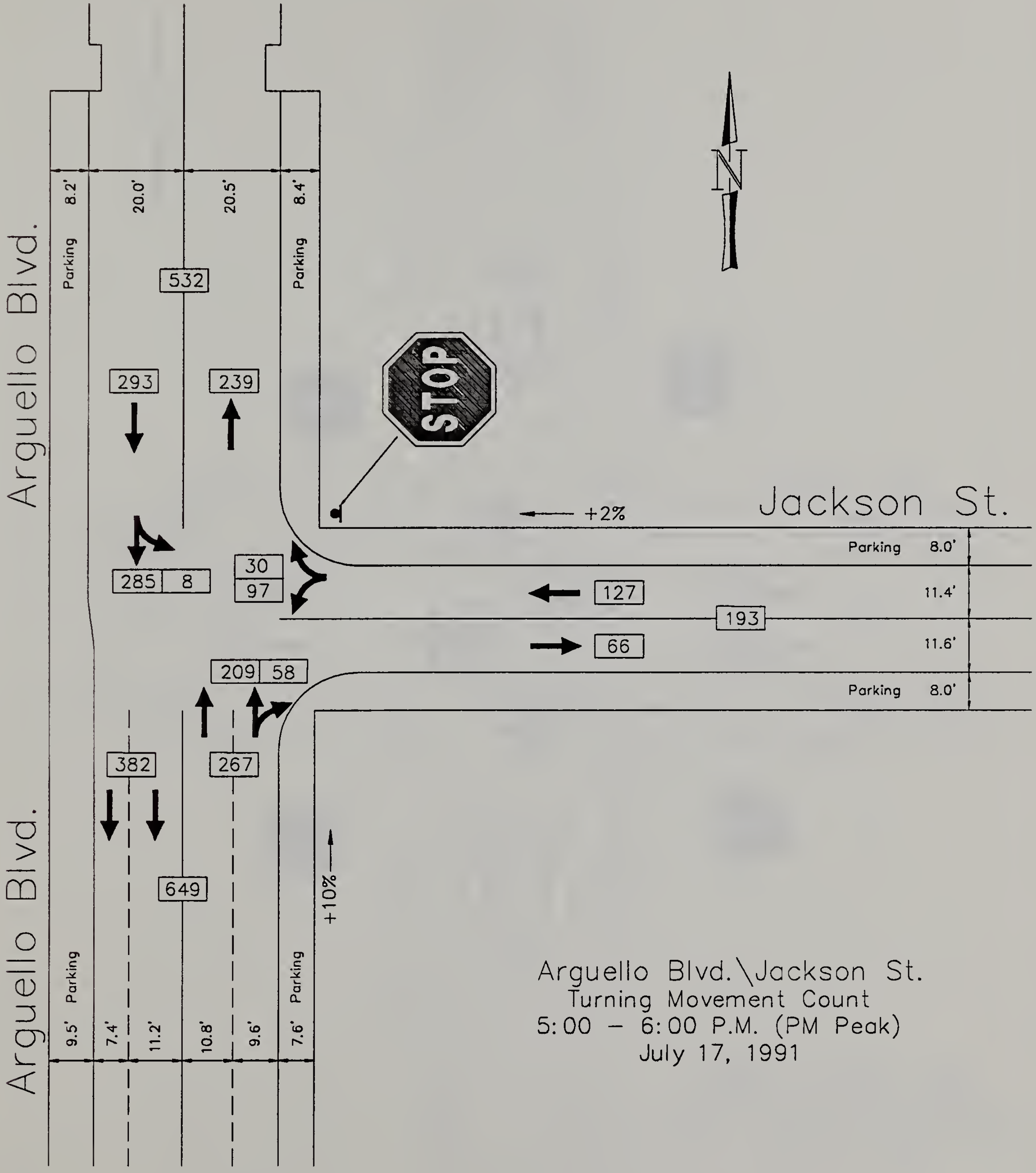
Presidio Dr.\Pacific St.
Turning Movement Count
8:00 – 9:00 A.M. (AM Peak)
July 17, 1991



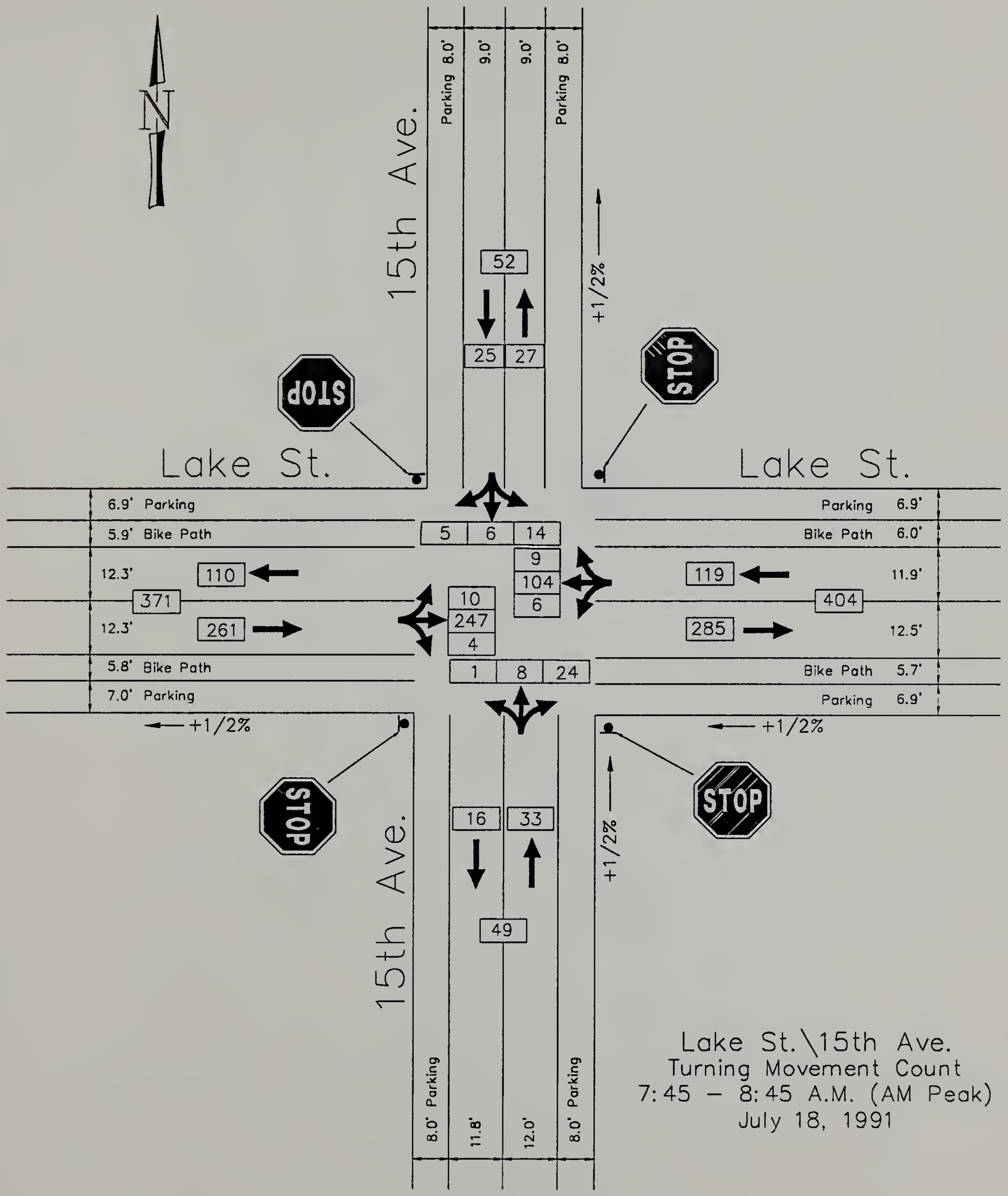
Presidio Dr.\Pacific St.
Turning Movement Count
5:00 - 6:00 P.M. (PM Peak)
July 17, 1991



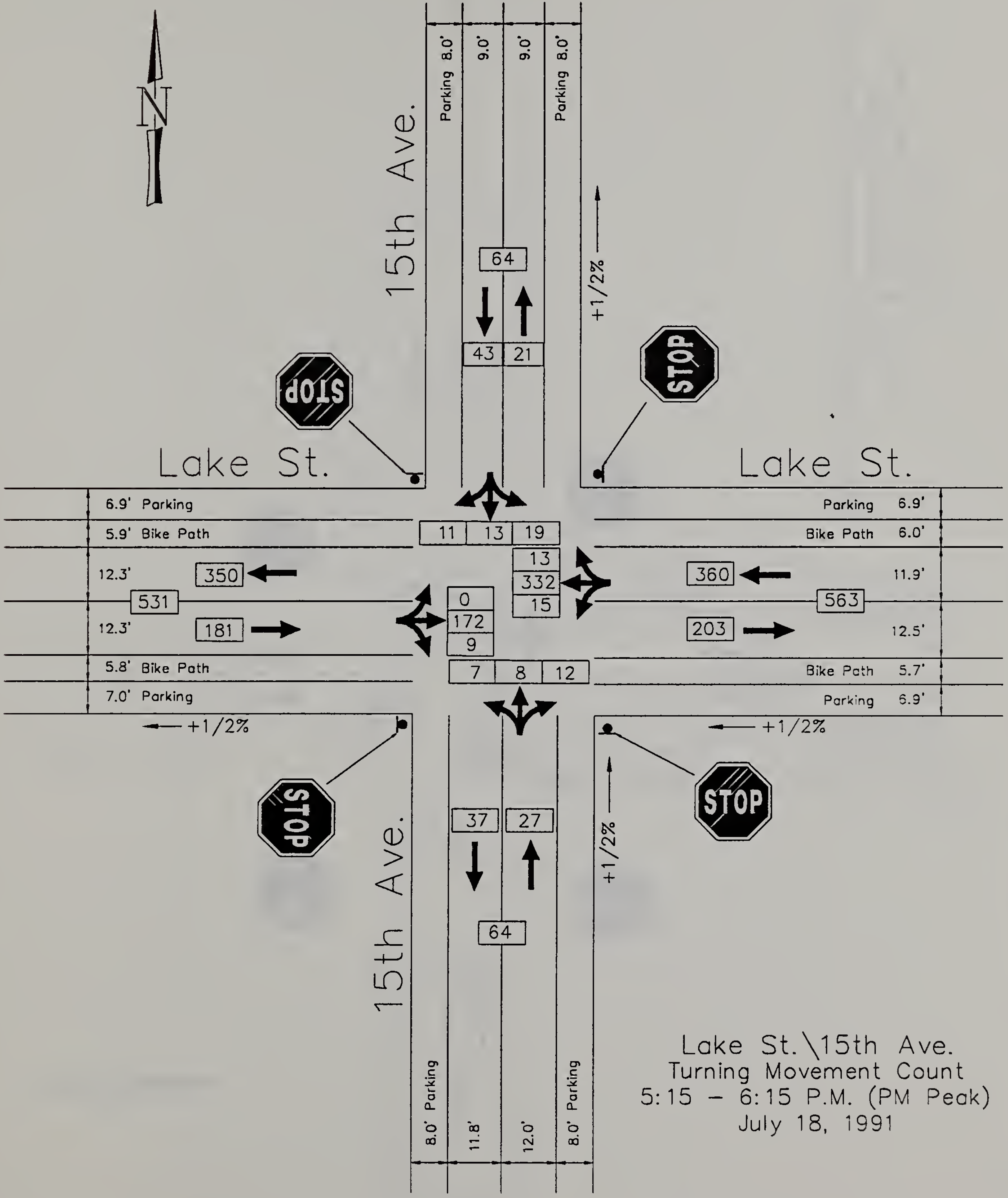
Arguello Blvd.\Jackson St.
Turning Movement Count
8:00 – 9:00 A.M. (AM Peak)
July 17, 1991



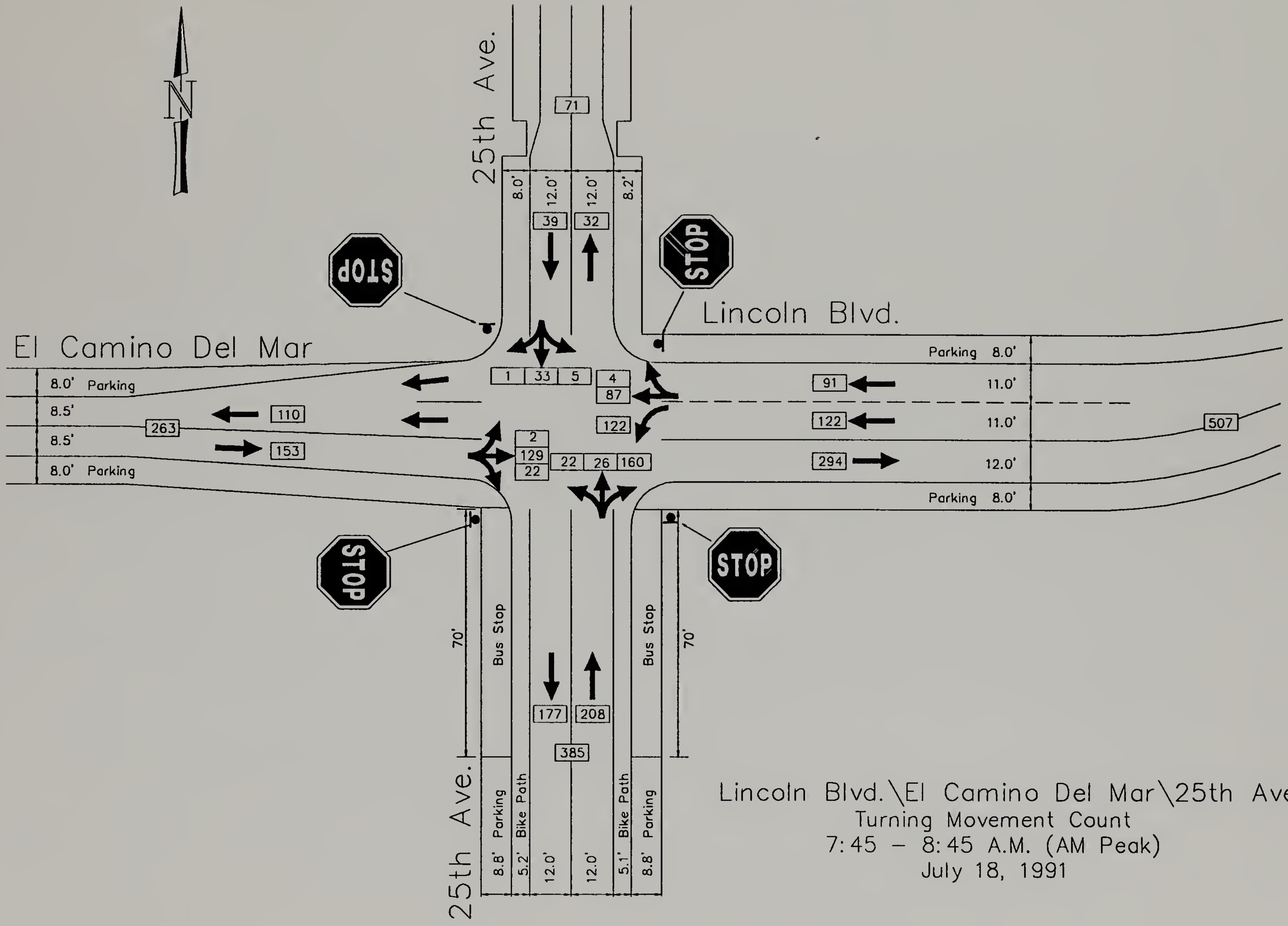
Arguello Blvd.\Jackson St.
Turning Movement Count
5:00 – 6:00 P.M. (PM Peak)
July 17, 1991



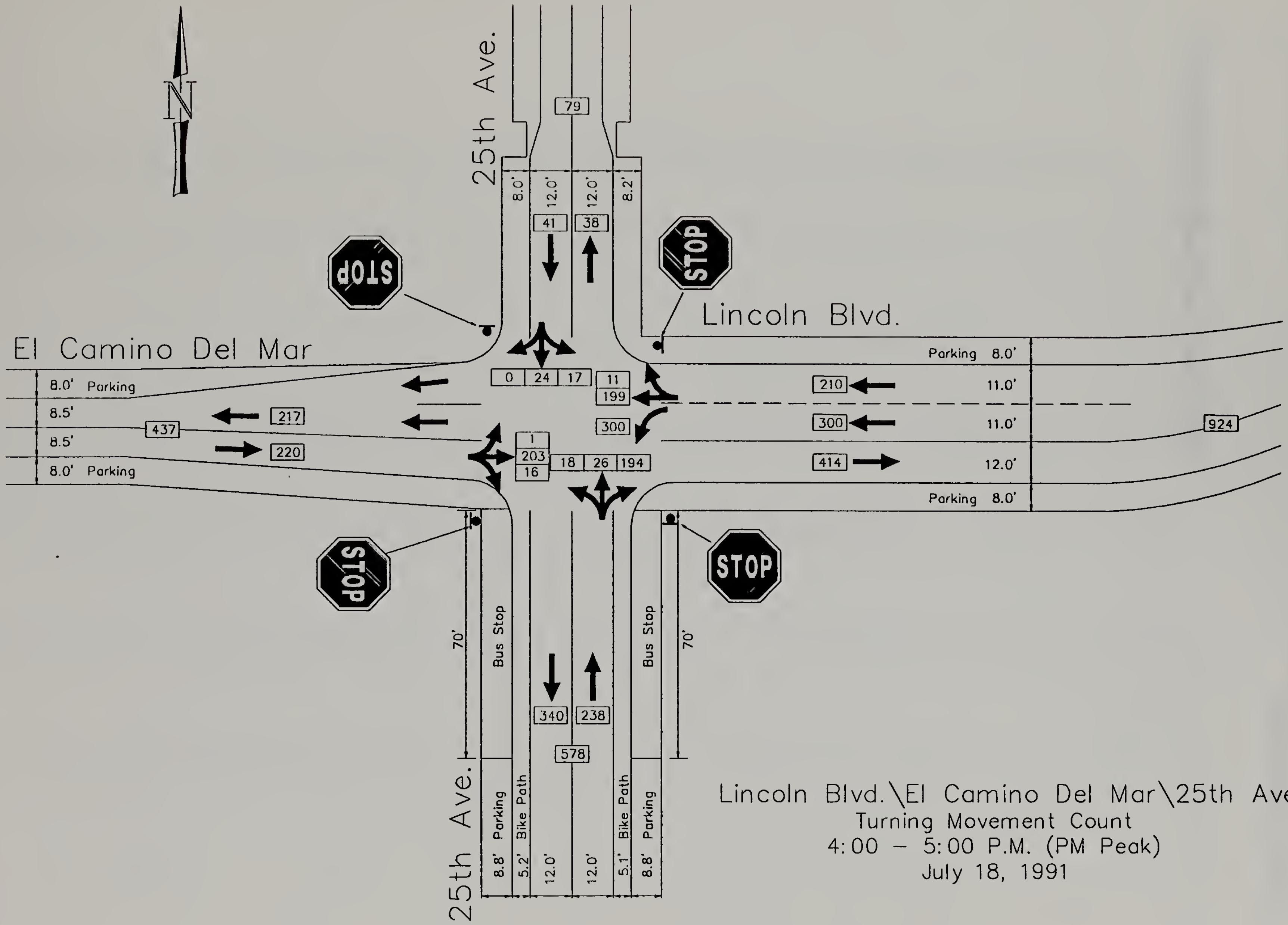
Lake St.\15th Ave.
Turning Movement Count
7:45 – 8:45 A.M. (AM Peak)
July 18, 1991



Lake St.\15th Ave.
Turning Movement Count
5:15 – 6:15 P.M. (PM Peak)
July 18, 1991



Lincoln Blvd.\El Camino Del Mar\25th Ave.
Turning Movement Count
7:45 – 8:45 A.M. (AM Peak)
July 18, 1991



Lincoln Blvd.\El Camino Del Mar\25th Ave.
Turning Movement Count
4:00 – 5:00 P.M. (PM Peak)
July 18, 1991

Parking Lots Machine Count Data

LETTERMAN MEDICAL CENTER
PARKING LOT USE ANALYSIS

DATE	HOUR ENDING	MACHINE COUNTS				PARKED VEHICLES (Machine Counts)	PARKED VEHICLES (Final Adjust.)	MANUAL COUNTS
		North Entrance IN	North Entrance OUT	South Entrance IN	South Entrance OUT			
Wed. 7/17/91	300	2	1	2	0	3	2	
	400	2	0	2	4	3	0	
	500	10	4	9	5	13	9	
	600	18	8	25	8	40	34	
	700	68	16	98	31	159	152	
	800	121	31	150	60	339	331	
	900	95	59	91	50	416	406	
	1000	99	70	97	69	473	462	462
	1100	93	102	111	94	481	508	508
	1200	93	146	107	148	387	427	
	1300	112	96	124	132	395	448	
	1400	102	96	134	98	437	503	
	1500	71	107	98	115	384	463	
	1600	43	143	81	145	220	312	
	1700	44	127	51	136	52	157	
	1800	29	57	29	58	-5	113	
	1900	13	39	37	30	-24	107	107
	2000	18	31	17	37	-57	68	
	2100	12	16	17	13	-57	63	
	2200	16	8	8	20	-61	53	
	2300	8	8	25	15	-51	57	
Thu. 7/18/91	2400	4	18	10	20	-75	27	
	100	2	4	7	6	-76	21	
	200	5	5	4	8	-80	11	
	300	1	1	1	1	-80	5	
	400	3	1	3	1	-76	3	
	500	7	4	9	6	-70	4	
	600	10	13	28	5	-50	18	
	700	80	17	36	37	12	74	
	800	121	35	133	56	175	231	
	900	84	51	102	50	260	311	
	1000	90	65	108	88	305	350	350
	1100	101	82	125	105	344	412	412
	1200	92	130	114	162	258	343	
	1300	116	118	135	99	292	394	
	1400	92	91	125	120	298	417	
	1500	83	130	116	127	240	375	
	1600	85	113	101	169	144	296	
	1700	53	139	49	142	-35	134	
	1800	21	46	23	50	-87	99	99
	1900	16	23	24	38	-108	105	105
	2000	14	18	17	28	-123	87	
	2100	20	7	16	27	-121	86	
	2200	13	9	10	17	-124	79	
	2300	12	11	23	15	-115	85	
Fri. 7/19/91	2400	5	24	9	27	-152	45	
	100	1	1	2	3	-153	41	
	200	2	1	4	4	-152	39	

LETTERMAN MEDICAL CENTER

PARKING LOT USE ANALYSIS

DATE	HOUR ENDING	MACHINE COUNTS				PARKED VEHICLES (Machine Counts)	PARKED VEHICLES (Final Adjust.)	MANUAL COUNTS
		North Entrance IN	North Entrance OUT	South Entrance IN	South Entrance OUT			
	300	0	0	2	1	-151	36	
	400	2	2	5	0	-146	38	
	500	10	4	11	8	-137	44	
	600	14	4	22	10	-115	63	
	700	61	15	85	28	-12	162	
	800	128	34	142	57	167	338	
	900	101	57	138	64	285	453	453
	1000	90	74	113	104	310	476	476
	1100	103	99	104	116	302	470	
	1200	96	113	87	145	227	398	
	1300	109	84	113	104	261	434	
	1400	96	95	105	126	241	417	
	1500	75	106	115	119	206	384	
	1600	56	109	76	135	94	275	
	1700	46	118	69	143	-52	131	
	1800	37	41	28	50	-78	108	
	1900	21	31	33	31	-86	102	102
	2000	13	24	15	33	-115	73	
	2100	13	15	14	15	-118	71	
	2200	9	18	14	14	-127	62	
	2300	19	11	25	20	-114	75	
Sat. 7/20/91	2400	5	15	4	15	-135	54	
	100	2	1	7	15	-142	48	
	200	2	0	5	5	-140	50	
	300	2	2	2	4	-142	48	
	400	0	0	1	1	-142	48	
	500	4	1	7	3	-135	56	
	600	3	1	10	2	-125	66	
	700	18	8	28	17	-104	87	
	800	13	14	19	23	-109	82	
	900	24	18	29	22	-96	96	
	1000	22	19	27	20	-86	106	106
	1100	20	27	23	26	-96	96	
	1200	28	33	40	21	-82	110	
	1300	28	34	33	35	-90	101	
	1400	20	21	25	29	-95	96	
	1500	19	28	38	45	-111	80	
	1600	24	24	29	30	-112	79	
	1700	15	19	30	30	-116	75	
	1800	24	17	19	32	-122	68	
	1900	18	13	18	22	-121	69	
	2000	12	18	12	22	-137	53	53
	2100	11	11	8	12	-141	51	
	2200	10	10	16	12	-137	57	
	2300	16	6	23	21	-125	70	
Sun. 7/21/91	2400	4	8	8	13	-134	63	
	100	0	1	5	8	-138	61	
	200	0	0	5	5	-138	63	

LETTERMAN MEDICAL CENTER
PARKING LOT USE ANALYSIS

DATE	HOUR ENDING	MACHINE COUNTS				PARKED VEHICLES (Machine Counts)	PARKED VEHICLES (Final Adjust.)	MANUAL COUNTS
		North Entrance IN	North Entrance OUT	South Entrance IN	South Entrance OUT			
	300	1	0	1	3	-139	63	
	400	3	1	2	2	-137	67	
	500	3	2	4	3	-135	71	
	600	3	0	8	3	-127	81	
	700	13	10	34	11	-101	108	
	800	21	15	20	24	-99	112	
	900	9	11	11	7	-97	116	
	1000	20	14	18	19	-92	123	
	1100	18	29	33	29	-99	118	
	1200	14	21	26	19	-99	119	
	1300	14	14	32	30	-97	123	
	1400	23	33	24	29	-112	110	
	1500	21	26	22	31	-126	98	
	1600	16	15	28	33	-130	95	
	1700	12	11	13	20	-136	91	
	1800	19	15	21	21	-132	97	
	1900	17	16	13	22	-140	91	
	2000	17	12	10	28	-153	79	
	2100	12	9	8	5	-147	87	
	2200	9	7	12	13	-146	90	
	2300	11	15	23	16	-143	95	
Mon. 7/22/91	2400	1	2	11	12	-145	94	
	100	1	2	5	8	-149	92	
	200	1	4	3	3	-152	91	
	300	1	1	0	0	-152	93	
	400	2	0	3	1	-148	99	
	500	5	4	8	1	-140	108	
	600	12	9	13	6	-130	120	
	700	60	19	89	22	-22	230	
	800	122	46	152	49	157	411	
	900	90	46	106	54	253	508	
	1000	95	60	100	85	303	560	
	1100	94	66	115	101	345	604	
	1200	61	99	90	130	267	528	
	1300	87	98	140	126	270	532	
	1400	97	79	114	118	284	548	
	1500	85	105	102	132	234	500	500
TOTALS		4735	4641	5848	5708			

FORT POINT

PARKING LOT USE ANALYSIS

DATE	HOUR ENDING	MACHINE COUNTS (Unadjusted) Entering	MACHINE COUNTS (Unadjusted) Exiting	MACHINE COUNTS (Adjusted) Entering	MACHINE COUNTS (Adjusted) Exiting	PARKED VEHICLES (Machine Counts)	PARKED VEHICLES (Final Adjust.)	MANUAL COUNTS
	2100	45	22	32	37	5	4	
	2200	17	8	12	13	4	1	
	2300	12	5	9	8	5	1	
Wed. 7/17/91	2400	3	0	0	0	5	0	0
	100	0	0	0	0	5	0	
	200	0	0	0	0	5	0	
	300	0	0	0	0	5	0	
	400	0	0	0	0	5	0	
	500	2	1	0	0	5	0	
	600	0	0	0	0	5	0	0
	700	6	2	4	3	6	2	
	800	24	11	17	18	5	1	
	900	27	11	19	18	6	3	
	1000	56	9	40	15	31	29	29
	1100	93	15	67	25	73	67	
	1200	153	60	110	100	83	74	
	1300	108	54	78	90	71	58	
	1400	114	52	82	86	67	51	
	1500	138	54	99	90	76	56	
	1600	122	56	88	93	71	48	
	1700	114	39	82	65	88	61	
	1800	77	55	55	91	52	22	
	1900	55	27	40	45	47	13	13
	2000	59	32	42	53	36	3	
	2100	33	19	24	32	28	0	
	2200	9	3	6	5	29	0	
	2300	0	0	0	0	29	0	
Thu. 7/18/91	2400	2	0	0	0	29	0	0
	100	0	0	0	0	29	0	
	200	0	1	0	0	29	0	
	300	0	0	0	0	29	0	
	400	0	0	0	0	29	0	
	500	2	0	0	0	29	0	
	600	0	0	0	0	29	0	0
	700	8	6	6	10	25	0	
	800	24	12	17	20	22	0	
	900	39	10	28	17	33	8	
	1000	43	8	31	13	51	27	27
	1100	115	22	83	37	97	71	
	1200	120	53	86	88	95	66	
	1300	119	59	86	98	83	52	
	1400	134	46	96	76	103	69	
	1500	156	57	112	95	120	84	
	1600	143	59	103	98	125	86	
	1700	114	63	82	105	102	61	
	1800	102	62	73	103	72	28	
	1900	57	28	41	46	67	21	21

FORT POINT
PARKING LOT USE ANALYSIS

DATE	HOUR ENDING	MACHINE COUNTS				PARKED VEHICLES (Machine Counts)	PARKED VEHICLES (Final Adjust.)	MANUAL COUNTS
		(Unadjusted)		(Adjusted)				
		Entering	Exiting	Entering	Exiting			
	2000	50	26	36	43	60	9	
	2100	49	18	35	30	65	9	
	2200	17	3	12	5	72	11	
	2300	9	4	6	7	71	5	
Fri. 7/19/91	2400	3	1	0	0	71	0	0
	100	0	0	0	0	71	0	
	200	0	0	0	0	71	0	
	300	1	1	0	0	71	0	
	400	0	0	0	0	71	0	
	500	0	0	0	0	71	0	
	600	1	0	0	0	71	0	0
	700	12	0	9	0	80	6	
	800	20	8	14	13	81	5	
	900	50	12	36	20	97	18	
	1000	61	21	44	35	106	25	25
	1100	63	24	45	40	111	33	
	1200	137	28	99	46	164	89	
	1300	176	61	127	101	190	118	
	1400	128	57	92	95	187	118	
	1500	166	75	120	125	182	115	
	1600	159	71	114	118	178	114	
	1700	136	79	98	131	145	84	
	1800	98	79	71	131	85	27	
	1900	87	38	63	63	85	30	30
	2000	63	26	45	43	87	28	
	2100	45	27	32	45	74	12	
	2200	27	10	19	17	76	10	
	2300	6	4	4	7	73	4	
Sat. 7/20/91	2400	0	0	0	0	73	0	0
	100	0	0	0	0	73	0	
	200	0	0	0	0	73	0	
	300	0	0	0	0	73	0	
	400	0	0	0	0	73	0	
	500	0	0	0	0	73	0	
	600	0	0	0	0	73	0	0
	700	21	1	15	2	86	12	
	800	23	7	17	12	91	16	
	900	63	19	45	32	104	29	
	1000	97	30	70	50	124	48	48
	1100	109	30	78	50	152	84	
	1200	166	54	120	90	182	122	
	1300	185	86	133	143	172	120	
	1400	200	81	144	134	182	138	
	1500	218	106	157	176	163	126	
	1600	243	119	175	198	140	111	
	1700	238	126	171	209	102	81	
	1800	183	111	132	184	50	37	

FORT POINT
PARKING LOT USE ANALYSIS

DATE	HOUR ENDING	MACHINE COUNTS				PARKED VEHICLES (Machine Counts)	PARKED VEHICLES (Final Adjust.)	MANUAL COUNTS
		(Unadjusted)		(Adjusted)				
		Entering	Exiting	Entering	Exiting			
	1900	127	64	91	106	35	30	30
	2000	94	43	68	71	32	25	
	2100	32	33	23	55	0	0	
	2200	29	2	21	3	18	6	
	2300	17	8	12	13	17	2	
Sun. 7/21/91	2400	0	0	0	0	17	0	0
	100	1	0	0	0	17	0	
	200	0	0	0	0	17	0	
	300	1	0	0	0	17	0	
	400	0	1	0	0	17	0	
	500	1	1	0	0	17	0	
	600	0	0	0	0	17	0	0
	700	28	5	20	8	29	12	
	800	16	17	12	28	13	0	
	900	52	13	37	22	28	10	
	1000	76	19	55	32	51	33	
	1100	109	53	78	88	41	23	
	1200	217	52	156	86	111	93	
	1300	228	95	164	158	117	99	
	1400	281	89	202	148	171	153	
	1500	308	165	222	274	119	100	
	1600	286	96	206	159	166	147	
	1700	295	159	212	264	114	95	
	1800	198	115	143	191	66	47	
	1900	139	73	100	121	45	26	
	2000	60	38	43	63	25	6	
	2100	55	25	40	42	23	3	
	2200	17	8	12	13	22	2	
	2300	0	1	0	2	20	0	
Mon. 7/22/91	2400	0	1	0	0	20	0	0
	100	0	0	0	0	20	0	
	200	0	0	0	0	20	0	
	300	0	0	0	0	20	0	
	400	0	0	0	0	20	0	
	500	0	0	0	0	20	0	
	600	0	0	0	0	20	0	0
	700	16	5	12	8	24	4	
	800	17	8	12	13	23	3	
	900	26	9	19	15	27	7	
	1000	41	19	30	32	25	5	
	1100	67	20	48	33	40	20	
	1200	113	26	81	43	78	58	58
	1300	145	63	104	105	77	54	
	1400	121	42	87	70	94	69	
	1500	156	68	112	113	93	65	
TOTALS		9124	3900	6550	6467			

BAKER BEACH

PARKING LOT USE ANALYSIS

DATE	HOUR ENDING	MACHINE COUNTS		PARKED VEHICLES (Machine Counts)	PARKED VEHICLES (Final Adjust.)	MANUAL COUNTS
		Entering (Unadjusted)	Exiting			
Thu. 7/18/91	100	1	1	5	9	
	200	4	8	1	8	
	300	2	3	0	11	
	400	2	3	-1	13	
	500	2	3	-2	16	
	600	1	4	-5	16	
	700	9	11	-7	18	
	800	13	14	-8	20	
	900	15	12	-5	27	
	1000	22	31	-14	21	21
	1100	24	32	-22	24	
	1200	29	35	-28	29	
	1300	42	54	-40	29	
	1400	62	54	-32	48	
	1500	40	47	-39	52	
	1600	54	60	-45	57	
	1700	35	64	-74	40	
	1800	31	47	-90	35	
	1900	23	43	-110	26	26
	2000	27	38	-121	18	
	2100	13	27	-135	6	
	2200	4	15	-146	0	
	2300	5	7	-148	0	
Fri. 7/19/91	2400	7	7	-148	1	
	100	5	7	-150	1	
	200	0	1	-151	3	
	300	1	2	-152	4	
	400	0	0	-152	7	
	500	1	0	-151	10	
	600	1	2	-152	12	
	700	9	4	-147	19	
	800	9	9	-147	22	
	900	17	22	-152	19	
	1000	25	26	-153	21	21
	1100	22	40	-171	23	
	1200	37	45	-179	35	
	1300	51	57	-185	49	
	1400	50	85	-220	34	
	1500	47	80	-253	20	
	1600	56	75	-272	21	
	1700	53	79	-298	15	
	1800	42	65	-321	12	
	1900	42	49	-328	25	25
	2000	26	32	-334	23	
	2100	27	45	-352	8	
	2200	6	24	-370	0	

BAKER BEACH

PARKING LOT USE ANALYSIS

DATE	HOUR ENDING	MACHINE COUNTS		PARKED VEHICLES (Machine Counts)	PARKED VEHICLES (Final Adjust.)	MANUAL COUNTS
		Entering (Unadjusted)	Exiting			
	2300	5	16	-381	0	
Sat. 7/20/91	2400	9	13	-385	0	
	100	2	5	-388	0	
	200	1	3	-390	0	
	300	1	0	-389	0	
	400	2	0	-387	0	
	500	0	0	-387	1	
	600	5	3	-385	7	
	700	12	4	-377	18	
	800	15	8	-370	29	
	900	15	22	-377	25	
	1000	24	31	-384	22	22
	1100	29	36	-391	29	
	1200	40	50	-401	34	
	1300	58	77	-420	29	
	1400	78	91	-433	30	
	1500	78	88	-443	35	
	1600	93	103	-453	39	
	1700	94	105	-464	42	
	1800	94	122	-492	28	
	1900	56	70	-506	29	
	2000	51	62	-517	32	32
	2100	29	60	-548	7	
	2200	9	28	-567	0	
	2300	1	8	-574	0	
Sun. 7/21/91	2400	2	10	-582	0	
	100	4	10	-588	0	
	200	2	9	-595	0	
	300	3	4	-596	0	
	400	0	0	-596	0	
	500	1	0	-595	4	
	600	4	4	-595	10	
	700	13	6	-588	22	
	800	10	12	-590	26	
	900	16	13	-587	34	
	1000	25	26	-588	39	
	1100	36	44	-596	36	
	1200	54	55	-597	41	
	1300	90	92	-599	45	
	1400	134	118	-583	66	
	1500	145	123	-561	94	
	1600	121	151	-591	69	
	1700	118	154	-627	39	
	1800	77	107	-657	14	
	1900	64	94	-687	0	
	2000	37	55	-705	0	

BAKER BEACH

PARKING LOT USE ANALYSIS

DATE	HOUR ENDING	MACHINE COUNTS Entering (Unadjusted)	MACHINE COUNTS Exiting (Unadjusted)	PARKED VEHICLES (Machine Counts)	PARKED VEHICLES (Final Adjust.)	MANUAL COUNTS
	2100	28	43	-720	0	
	2200	7	15	-728	0	
	2300	1	2	-729	0	
Mon. 7/22/91	2400	0	0	-729	0	
	100	0	0	-729	0	
	200	3	0	-726	0	
	300	0	0	-726	0	
	400	0	0	-726	1	
	500	0	0	-726	7	
	600	0	0	-726	12	
	700	8	5	-723	21	
	800	11	5	-717	32	
	900	6	14	-725	30	
	1000	15	19	-729	31	
	1100	23	38	-744	22	
	1200	31	31	-744	27	
	1300	46	54	-752	25	25
	1400	72	72	-752	31	
	TOTALS	3002	3759			